THE SPACE GAMER

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EDITOR: C. Ben Ostrander
PUBLISHER: Howard Thompson
CONTRIBUTING EDITORS: Steve Jackson, Robert Taylor
COPY EDITOR: Alice Ann Hoeft
SUBSCRIPTIONS: Tommye Thompson, Karol Sandberg

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WHERE WE'RE GOING

The first thing you'll notice is that this is the last issue of 1977, yet you're getting it in January, 1978. This was a decision on our part to avoid Christmas mailing loss in sending TSG by bulk mail. The good old post office is known to literally throw away a good portion of bulk mail during the holiday crunch. We'd rather you get it late than lose 5-10% of the magazines completely in the Christmas mail.

WARNING: If you don't give the post office your forwarding address and tell them you'll pay to have all mail, including bulk (like TSG), forwarded, your copies of TSG will not follow you. It's up to you to let us know when and where you move. We are sending out a lot of extra copies of TSG as replacements when a move was involved. The extra cost may mean that we will have to discontinue this policy shortly.

We are working on second class mailing privileges, but are uncertain if TSG will qualify. A second class permit should help curtail the current mail loss.

THE FANTASTY TRIP publishing schedule has been altered again. We don't want to come out with the LABYRINTH segment for game mastering until we have it very well done. Others have rushed their role playing games into production and have what we fell are far inferior systems. THE FANTASY TRIP: IN THE LABYRINTH is already equal to anything else and getting better...

Worried gamers who fear we are duplicating the D&D style release of multiple dependent segments of the game should quit worrying. THE FANTASY TRIP system is coming out with a variety of games based on the same system. Unlike D&D and other systems, we are trying to make each segment stand alone as a separate game that doesn't need any other game to play. The only exceptions will be the solitaire LABYRINTHS and some play aid packages for those who want them. MELEE is a stand-alone game. WIZARD is a stand-alone game. TFT: IN THE LABYRINTH is a stand-alone game. If you never buy more than one, you will still have a playable game with many possibilities all by itself. The games <u>can</u> be put together. MELEE and WIZARD together are a good basic magic/combat system. LABYRINTH will have all the economics, world stocking, and campaign rules needed to play long, running games. LABYRINTH will also contain more combat and magic, along with MELEE and WIZARD style rules all worked in, plus combat and magic as appropriate to campaign games.

LABYRINTH will improve on things that don't work well in MELEE and WIZARD. A project as ambitious as TFT system must be looked at as a game system that will evolve and mature. Major structure won't change from game to game. But, as we see ways of improving the system, you can be sure we'll put them in later segments and revised editions of earlier segments.

An open-ended system like THE FANTASY TRIP is too big to be made perfect on the first pass with the resources available to <u>any</u> wargame firm. It was decided to develop TFT as an evolving system rather than design it with constraints that would let us iron everything out from scratch. We aren't perfect and aren't designing TFT as if all our current ideas are the perfect and final answer. A game that simulates role playing life should be open-ended. It should allow for change and growth of the system. That's the way life is and that's the way the game should be.

That's saying up front that TFT will never leave the development stage. There will always be something new in the works. There will always be playtesting and reading your letters for new ideas. We'll always be looking for ways to improve. We, and you, will never come to the end of TFT as a static system that bores.

Other things planned for TFT at this time include solitaire booklets in the MicroGame size. These will probably come out in the February/March time frame at $1.95 to $2.95 each. This is a bit higher price than we'd like for them, but their distribution as specialty items won't be nearly as great as the MicroGames. But, we'd rather give you the specialty items at a higher price than not offer them at all.

TFT: IN THE LABYRINTH will probably see release before June as things are now planned. That's six months more for it; we decided we needed that much more playtesting and time for it to mature in our minds. It will also give us more time to absorb gamers' feedback from MELEE and WIZARD.

WIZARD buyers will note they got a 32 page rules booklet, instead of the advertised 24 pages, and double the counter set usually given with Micros. WIZARD ran five to six weeks late partly because it ended up with 60% more material than anticipated. There was another week delay while we consulted legal council over a threatened TSR lawsuit. It seems TSR thinks WIZARD infringes on their previously published title WAR OF WIZARDS. Considering how many gaming products have used "wizard" in the title, we think not.

IMPROVEMENTS to our MicroGames have been noted by many readers. Starting with WARPWAR we've gone to full-color covers and are now using a better stock of board for the counters. Coming improvements include the introduction of un-

sealed little plastic envelopes instead of our sealed baggie. These new envelopes are 5 mils thick as opposed to the 2 mil baggies. They open on the side and have a 2½" flap that tucks back inside the game. This will provide an inexpensive but more durable permanent storage for your MicroGames. Another upgrading will be a shift to 24 pages for the rules, counting the covers, instead of our current 20-page format. The full 24 pages will be on coated 70 lb. stock. Current format is 110 lb. coated stock for the cover and 50 lb. interior stock. You won't be able to see through the interior pages with the new stock and images will be sharper on the coated stock. You will not have the heavy-stock cover, but the color art will reproduce as well. We feel that 20% more pages and better interior reproduction are worth it!

The improvements are raising our per game cost on the Micros by a small amount (about 10%), but we feel the increased quality compensates. Most of the cost increase was absorbed by increasing production runs. The Micros are selling so fast that the second printing of OGRE, with full-color cover and some rules revisions, was 250% larger than the first printing.

Those who note the second edition of OGRE has some minor rules and counter changes should note that those changes will appear in TSG. You won't have to buy the second edition unless you just want to.

COMPUTERS...COMPUTERS: My every waking day now has about three hours of computer planning in it. We simply have to have a computer for our business operations. We're processing 3 to 4 times the mail this December than last December. The computer will make MicroGame subscriptions possible. The computer will ease our eventual shift to twice-weekly order processing and cut out two more days of the order processing cycle. That may not mean much to you except that we'll get your orders to you an average of five working days sooner with the help of the computer; but that's 30-40% less handling effort for us.

Planning for our first computer game is well along also. We've already planned to do the play-by-mail testing part with our Patron Subscribers. If it goes as envisioned, the Patrons will participate in at least several mail turns at no charge as playtesters. About all they will have to contribute is the postage for sending turns back to us. We expect almost all our Patrons will want to participate. Patrons should note that we'll keep them posted by first class mail on when this will occur. You should hear some definite details in April.

Per turn cost for the METASTAR 80 game will be in the $1.50-$2.00 per turn range. I know that price will bother some of our readers, but there is no way we can do the kind of game we want, and the kind you tell us you also want, for less money. Those who are aware of the STARWEB game run by Flying Buffalo know the delay problems that they are having at $1.00 per turn game. There is no reason to run a game that we have to cut all the corners on just to make a very small profit. Profit is what has let METAGAMING do the new things. You'll get a good game for $2.00 per turn rather than a problem-plagued game that's often late for less. It may cost more than you feel it should, but it will be worth the entertainment value.

METASTAR 80 will be a more complex game than STELLAR CONQUEST, but it will be less difficult to learn and play. Much of the complexity will be monitored by the computer. Much of your production and record keeping will be done by the computer automatically, based on your instructions. There's no reason to have you do a lot of shuffling and paperwork to keep your empire going when computers are soooo good at picky tasks.

Since this TSG is going to press late, nearly complete 1977 sales data are available. METAGAMING posts 1977 sales at 350% greater than 1976. The sales rate actually increased during the year with the last quarter also 350% more than first quarter sales. We don't know how many games were sold, but the preliminary estimate is 40-45,000 METAGAMING titles.

It was a very good year for METAGAMING. 1978 should be even better! Current minimal plans call for another tripling of sales. Six to eight new MicroGames will be published. MicroGame subscriptions should be available by April or May. TSG will more than double the current 3,500 paid circulation base with the new 8½x11" format. A professionally managed play-by-mail computer game should start by July-September. Also planned are two boxed games, including a reprinting of STELLAR CONQUEST in boxed format.

All these things will be possible in 1978 with your continued support. Depending on how fast we absorb growth, even more may be possible. Miniature figurines for some of our games are possible. Another whole line of innovative games is possible; we'd like to try a series of inexpensive, boxed games. Semi-historical MicroGames are possible by year end. I say "semi-historical" because we wouldn't try to recreate historical battles in Micro format. They would most likely to based on historical technologies and environments, but be abstracted, play-balanced scenarios. The feedback form is your place to let us know what you want in detail, so give it the attention it deserves.

NUTS, BOLTS, AND WASHERS

a designer's introduction to RIVETS

by
Robert R. Taylor

Designing and developing RIVETS was alot of work, a great deal of work, but it was more fun than the work and that made the effort an enjoyable one. However, producing a game (my first, in case you couldn't tell) can certainly put one's love of the hobby to a severe test. Especially when the pleasure one derives from the hobby is lost in the job of getting the game out, and on the market.

But now that RIVETS is out and I can hold my creation in my hands, my appreciation and enjoyment of the hobby has greatly increased. I feel quite proud. It's nice to see something you've sweated and labored to produce finally completed; it's a very nice feeling, a very satisfying feeling.

It's a feeling I share with everyone at Metagaming, since one never does these things alone (thank goodness, or I would still be working on the game). A rookie needs encouragement, help, and advice to keep him going, and I got all three from Howard, Steve, and Ben. The most heartening words came from Howard after I had showed him a prototype. "It's a very interesting concept," he said, "Design and develop it, and have it ready before Christmas."

And so I did.

The design of a game is simply the idea behind that game. In most war games, the design is based on an actual conflict, while in science fiction or fantasy games the design usually has to come from scratch since these games obviously have no historical reference.

Therefore, one of my first steps in developing RIVETS was to give the game a background, a setting, so that the action in the game would have more meaning and purpose. My original concept of RIVETS was a tongue-in-cheek game, where the armies were made up of stupid robots battling for absurd reasons. (Fortunately, this concept was valid enough that I never had to alter it as the game design progressed.) Borrowing from Steve Jackson's Orge Future History, I found a place in it for idiot robots, and evolved The Chronicle of the BOPPERs.

As the saying goes, "technology governs strategy" -- so does the pocketbook.

And as another saying goes, "there is nothing that someone cannot make a little worse with less care and time, with lower standards and quality control, and sell it a little cheaper". Such is definitely the case with the BOPPERs.

The appearance of the BOPPERs was prompted by economic factors and the types of coincidences that only occur in real life or in a bad science fiction novel. The major military powers in the late 21st century centered their strategies around the large cybertanks called Orcs?, Trolls?, some funny name (see Microgame #1); anyway, the Third World powers also wanted cybertanks, but the price tag was too high. Imagine, if you can, Ecuador trying to but a Nimitz class aircraft carrier.

But where there is a demand for a product soon there is someone to satisfy that demand.

The someone was OCNOR, an American manufacturing firm that was absorbed by a Japanese company, which was later controlled by a group of Arab oil sheiks. OCNOR began producing BOOPERs at factories in South America and Africa, where it enjoyed a tax free status, could sell direct to major customers, and bribes to the local officials kept the labor force docile and cheap. All of which insured the stockholders a large profit. And the BOPPERs sold like the proverbial hot cakes.

Their popularity was due in part to their cost. They were cheap, very cheap. They were also easy to maintain, and they didn't require a high technology base for support. Of course, the BOPPERs were much smaller than cybertanks, they were extremely easy to destroy, and their programming was quite limited. Programming was the toughest engineering problem during the BOPPERs research and development. The first models couldn't, as one

general remarked, tell a 'soldier from a tree'. The Battle of Forest Glade (now a cobalt testing ground) is a typical example.

However, the narrow programming of the BOPPERs made them very attractive to certain buyers. They were eagerly purchased by every military dictatorship in the world since it was impossible for BOPPERs to revolt or stage coups the way so-called loyal troops were prone to do. In these countries, the BOPPERs were used primarily to keep the civilian populace in line so the El Presidente-Generalissimo-Dadas could concentrate on increasing Swiss bank accounts.

Although BOPPERs were built at automated factories, they were not true robots. They could not act in a completely independent manner (although they had been known to act irrationally at times) and would usually just follow the dictates of their programming. Also, the BOPPERs were mainly controlled by a central computer brain unit which was located at the factory or headquarters of the local despot. Despite their programming and the control of the central brain unit, BOPPERs did have a certain amount of free will, as much as the average automaton.

However, the biological warfare of the late 21st century during the Pan-european-Combine War did away with most of the people in the world, and, free will or not, the BOPPERs were on their own.

Suprisingly, the BOPPERs did quite well. Due to their low technological needs they could 'live off the land', especially if the land had a few used car lots on it, and they had a high propensity for scavenging; they always got the best bargains at garage sales. Also, the central brain units were equipped with heuristic epistemological programming, which allowed the BOPPERs to learn through experience. Experience was important, since their average IQ was only slightly higher than that of most kitchen appliances. Despite their limited intellect, the BOPPERs developed a cybernetic equivalent of territoriality. Conflicts between neighboring factories became common, and soon the BOPPERs, following in the grand tradition of Homo Sapiens, were battling among themselves.

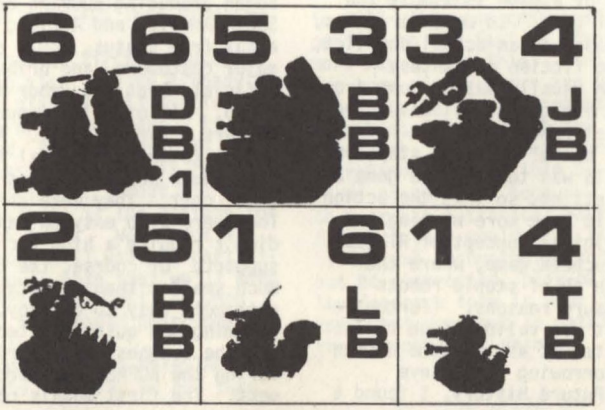
These wars established the BOPPERs as the rulers of the battlefields in the 22nd century. Actually, they ruled the battlefield simply because they were the only things stupid enough to be on it.

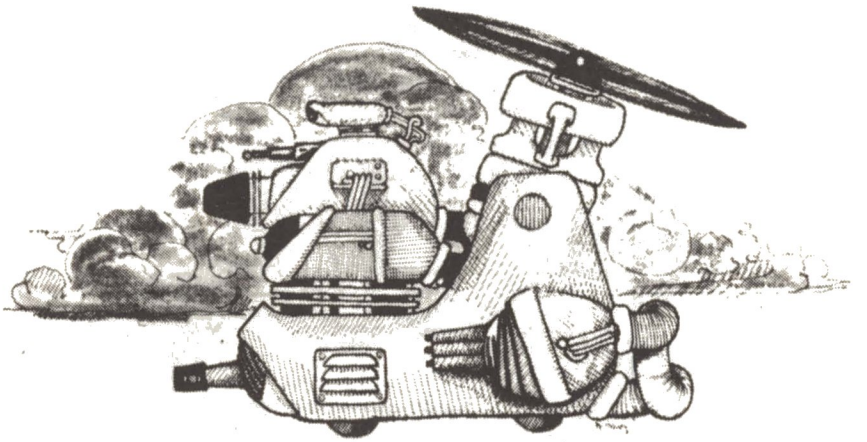
BOPPERs? Oh, yeah. Battlefield Oriented Pre-Programmed Eradicator Robots.

In the game, this history is translated into the design idea. It is basically this: The players choose their robot units, program them, and move to attack their opponent's units. Each player attempts, through his maneuvering and tactics, to destroy the computer complex that controls the other player's robots. This central concept is the core of the game, and all other design details were built from this main element.

The programming aspect of RIVETS is the key to the game, or to use another term, its gimmick. Each BOPPER type (there are six in the game, one of which is "smart" enough to attack all the other BOPPERs, and therefore, doesn't require any programming) must be programmed to attack another BOPPER type, but each type can be programmed to attack only one other type. (I told you they were stupid.) Thus, if a unit was adjacent to an enemy unit, but not programmed to attack it, it would simply ignore that enemy unit. Since the players choose and program their units in secret, and there are no zones of control in the game, RIVETS has a rather wide open style of play.

The programming, in game mechanics,





is done simply by writing down on scratch paper what enemy types your unit types can attack, and revealing the paper to your opponent when you make an attack. Units can be re-programmed, but all the units of that type must return to their home computer complex to receive this new programming.

After building a background for the game and integrating it with the design concept, I faced the task of actually developing the game.

The development of a game is the work it requires to move the design idea to paper, abstract to concrete.
I, of course, knew that RIVETS was to be a MicroGame, and this gave me a valuable aid in developing. The MicroGame format did place a number of limitations on the development, but it also gave me a structure to build the game around, and this was quite welcome to a novice game designer.

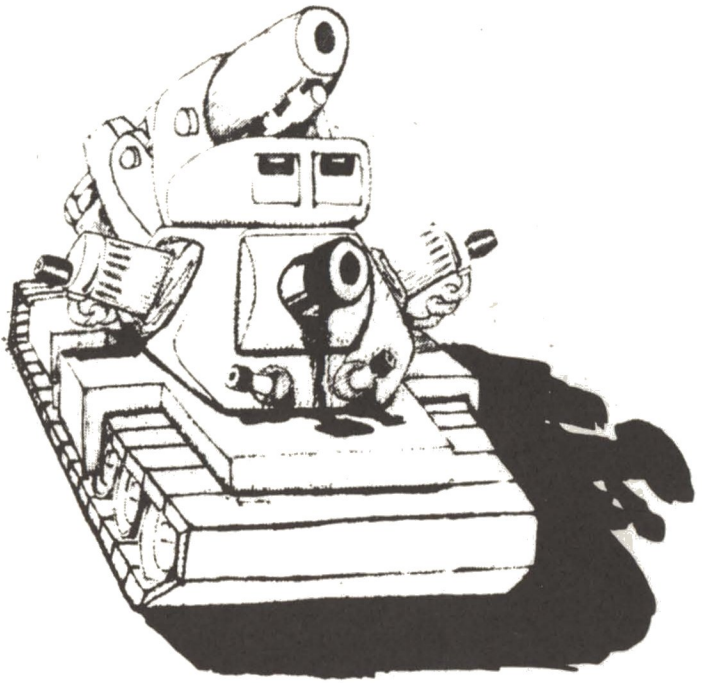
A MicroGame, due to budget constraints, can have no more than 112 full size counters (RIVETS has 118, but 20, the missile counters, are slightly smaller than full size), the map must fit on an 8 1/4" by 14" sheet of paper, and the rulebook can only contain 18 pages of rules (of course, the rulebook also has artwork, tables, graphs, etc., so there are really only 12 full pages available for rules).

With all the above in mind, I went to work.

The map wasn't really a problem. The prototype map resembled the OGRE map, but with an equal number of craters at each end. No unit could move through a crater hex, and any unit forced to retreat into a crater hex was destroyed since the crater hexes were considered to be highly radioactive and would fuse the electronics of the BOPPERs. We playtested with this map for quite awhile, but I was never satisfied with it, although it was an accurate representation of how a robot would see terrain (i.e., the white hexes were clear terrain and passable, while the black hexes were blocked and unpassable, a binary system, go or no go). But a black and white map is dull, plus I didn't like the idea of nuclear war having killed all the people. Nuclear holocaust is a very overworked idea. I mean, just how many times can "dat ole debbil tur-mo-new-cle-are wor" do us in? So I decided on a biowar killing most of the people, and developed a regular terrain map with rivers, forests, a marsh, and a few craters.

This became the map in the game. There were a few changes made for play balance, but the map remained essentially the same after it was changed to standard terrain features.

During the development of the game, the counters were a constantly changing factor, and a consistent headache. Initially, I wanted only four types of



robots, but this changed to eight, and after a great deal of playtesting I settled on six. The next problem was how many of each type would there be. This of course depended on their movement and combat strength, another factor to be balanced. Going back to the basic idea that the robots would have to be programmed before they could attack, I decided that one of the robot types would be smarter than the others. This robot could attack all the other types since it had a larger brain/memory storage. However, this unit could only have this attack ability through the sacrifice of firepower and movement. So I gave it a combat strength of one, and a movement allowance of three points. This is the Tiny Bopper unit in the game. With this as a starting point, I was able to give the other units their combat strengths and movement points in relation to the Tiny Bopper (nicknamed the Groupie). I gave the most powerful ground unit a combat strength of five, but only two movement points. This is, of course, the Big Bopper unit. The next most powerful ground unit received a combat strength of three and a movement allowance of three, the Jack Bopper (nicknamed the Ripper). The Jack Bopper is followed by a ground unit with a combat strength of two and a movement ability of four points. This is the Rocket Bopper (nicknamed the Redneck). I then decided to have a ground unit equal to the Tiny Bopper in combat strength, but with a high movement ability. This unit would serve as the cavalry in the game. I gave it five movement points, and it became the Light Bopper. The air unit created a number of problems. I wanted a very limited number of air units, but they also had to be powerful. I gave the air unit a six movement points, and a combat strength of six, but I limited each side to only two air units, the Dive Boppers. But, the air units were powerful. So I allowed the computer complexes to fire anti-aircraft missiles. Having gone that far, I added anti-missile missiles to the game, and threw in air-to-ground missiles, too. All this complicated things, but it balanced. However, the game tended to drag due to the slow movement abilities of the units, but that was easy to solve. I simply gave each unit an additional movement point (except for the air units). Although I had a ground unit that could move as fast as an air unit, I rationalized this by saying that the Dive Bopper was a helicopter type aircraft and so heavily armed that it was very slow moving. That is one of the definite advantages of designing science fiction games; it is very easy to rationalize something that has no actual historical evidence.

With the movement and combat strengths of the units decided, it was quite easy to determine the number of units per type. Since during the playtesting

each side had had ten units per type, and this had worked, I wanted to keep it. But due to the inclusion of the missiles units, this became impossible. So I dropped the number per type to eight, but through some fancy layout work by Steve Jackson, the size of the missile counters was reduced slightly. This allowed me to bring one of the unit types back up to ten counters. I chose to let the Light Bopper type have the extra two counters since it was the weakest unit in the game.

Although the game scenarios never call for the players to have more than one computer complex counter each, additional counters were provided for those players that enjoy making up their own scenarios.

As for the rules....

They are the guts of a game, and they are the hardest part of developing a game. Following Howard's example in his development of WarpWar (TSG #13), I didn't attempt to put any rules down on paper until I was certain (through playtesting and simple trial and error), that I had a rule that would work.

In August, I playtested RIVETS three times a day with various people. I made numerous notes during these playtest sessions, but I didn't write the first draft until September 10th. This first draft proved quite workable and needed only a few minor changes before it became the final copy. During the typesetting, some tight editing was used to fit the rules into the space alloted. It was a snug fit, but we got them all in there. At game layout, Steve Jackson is a master.

Finally, it was all sent to the printers, and I could start worrying. Howard and Steve told me all sorts of horror stories of what printers can do to games. I had this frightening vision of my typeset copy being ripped to shreds by some berserk press, or a clumsy printer spilling ink over the original artwork. Fortunately, none of these happened, and RIVETS came back from the printers looking great. This is due primarily to the artwork. I feel the artwork in RIVETS is superb. Rusty Ansley gave me exactly what I wanted. The illustrations capture perfectly the comic tone of the game. I feel I owe Rusty a profound debt. When I was feeling a little low about the game, and things just weren't working, Rusty showed me his sketches of the BOPPERs, and that gave me the mental boost I needed to attack all the problems with a fresh attitude. Besides, with most of the sketches finished, I had to complete the game for their sake. I wanted to share those beautiful robots, BOPPERs with everybody.

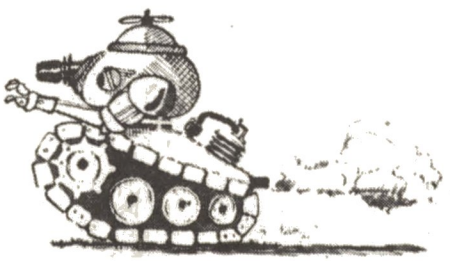
One of the things that was left out of the game, and it was something I hadn't considered, was the size of the BOPPERs. Roughly speaking, the Tiny (pronounced teeny) Bopper and the Light Bopper are about the size of a VW bug. Using that as a base point, the Big Bopper and the Jack Bopper are approximately the size of light tanks, and the Rocket Bopper is around the size of an armored personnel carrier, and the Dive Bopper fits the dimensions of a two-seater plane.

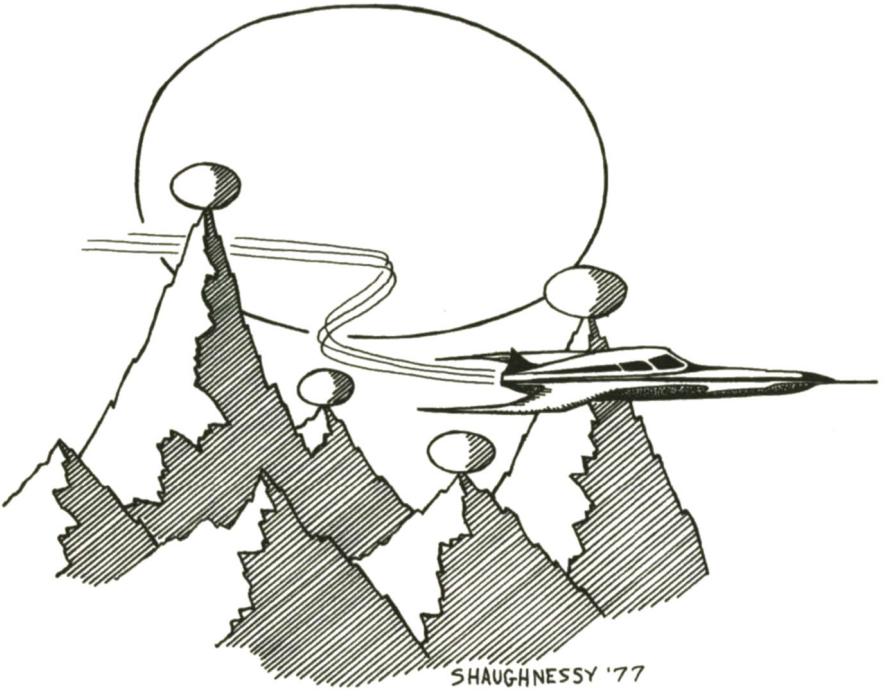
Another point I hadn't thought of was how much time did a game turn represent. Since it is a tactical game, I believe that each player's turn represents one minute, and since each hex equals one kilometer, this gives you a good idea of how fast the units move. Of course, not everything about the BOPPERs makes sense, but when that happens I just remind people that it was OCNOR, who built them. Remember, OCNOR spelled backwards is cheap.

Concerning strategy, I highly recommend a very aggressive style of play. The objective of the game is to destroy the other player's computer complex since it controls his units. Destroying the other player's units makes it easier to knock out his computer complex, but avoid pitched battles. As in OGRE, where the Ogre's objective is the command post, destroying the units is a way to achieve that objective, but too much wasted shooting up units can cost the game. The same holds true in RIVETS. Essentially the strategy in RIVETS is quite simple: get to your opponent's computer complex first and with the largest force. Firstest with the mostest.

Finally, with most sincerity, thanks for buying the game. I sure hope you like it because it was made for you.

Now, Howard, I had this idea the other day about...





This paper discusses the difficulties encountered in the creation of meaningful star maps. It is therefore, only proper that I begin by giving guidelines by which a meaningful map may be recognized.

Any good map must possess three attributes: completeness, accuracy, and secondary data.

Completeness and accuracy are the holy grails of star-mappers: always sought but never truely seen. Interstellar space is vast, and our present limited point of view makes true accuracy and completeness not only impossible, but inconceivable as well. We can only do our best with the data at hand. Later we shall see that our best is often substandard by the standards applied to terrestial maps.

Secondary data is data which is not necessary, but which adds realism, useability, and meaning to a map. Examples would be mileage charts on state maps, symbols segregating cities by size, and relief representations of terrain elevation. Strictly speaking such information is almost never necessary, and through much of history map-users have done without. There is no denying that such data is nice to have.

Meeting completeness and accuracy criteria is easy. Simply include all stars known to be in a given volume of space, and represent their positions as accurately as possible. Other features of interstellar space - dust clouds and so forth - are almost always unmappable. When you have all the stars in a given region you have usually done your best.

Secondary data is a subject upon which no hard and fast rules can be given, but I will venture a personal opinion. It seems to me that any star map should include star name, spectral class, and a catalog number. Multiple star systems must be somehow identified, although they can obviously not be separated on any interstellar distance scale. Some statement of the probable error in stellar position is also desireable. The spectral class and catalog number are especially important; for the first is related to such stellar properties as mass and size, while the second is a valuable cross-reference for anyone who wishes to look up more detailed data on a given star.

The first and most serious problem confronting all would-be galaxy mappers is the difficulty of obtaining relatively complete, accurate useable data. Most "complete" star lists are confined to the immediate stellar neighborhood (within a radius of five to six parsecs from Earth). Star catalogs, which are more complete, inevitably bury the stars of a given stellar region among stars which lie in the same direction, but which may be nearer or farther away by orders of magnitude.

To be useable by the average hobbyist, data must be reasonably compact. Few people have the time and resources to sift through half-a-dozen catalogs, not to mention hundreds of special papers, in

ON THE CREATION OF STAR MAPS

by
Christopher S. Spilman

search of data about nearby stars. I have found only two publications which go beyond the immediate stellar neighborhood, yet satisfy the completeness and compactness criteria. The first is This Quarter of the Universe is Ours: a Handbook for Building Three-Dimensional Star Maps, shich I shall hereafter refer to as the Handbook. The second is the Catalog of Nearby Stars, which I shall hereafter refer to as the Catalog. (See bibliography).

This paper is based on the Catalog, which includes the data required for an analysis of probable position errors. I shall however give a brief critique of the Handbook.

The Handbook is itself based on the Catalog. It is both cheaper and easier to obtain than the Catalog. The Handbook's main attraction is that it contains several star lists, one of which includes the whole of the Catalog and additional Naval Observatory observations as well. These lists contain cylindrical and rectangular coordinates for over 1800 stars. The Handbook also includes a computer program used in producing the star lists.

From my point of view, which is admittedly perfectionist, the Handbook contains several flaws. There is no mention of probable position errors, which as we shall see make all star positions beyond twenty parsecs doubtful at best. In addition, the computer program is difficult to understand unless one has a copy of the Catalog at hand. The actual remarks on creating maps are nothing which any hobbyist could not deduce for himself.

For all this, the Handbook's star lists are well worth having.

The Catalog gives star positions in spherical polar coordinates, using the Right Ascension (RA)/Declination (DEC)/ Parallax (Par) units. RA is given in hours, minutes, and seconds; with 24 hours equaling 360 degrees. DEC is given in degrees and ('). Parallax is given in thousandths of a degree.

Our first task is putting RA and DEC into the same units. The logical choices for mapping are degrees and radians. I have chosen degrees because my calculators and computers prefer degrees. Anyone who prefers radians can easily add the degree-to-radian conversion factor to any formula below.

For RA the conversion factors are one hour = 15 degrees, one minute = 0.25 degrees, and one second = 0.004166666... The seconds conversion can be terminated at any convenient point. For DEC the only conversion factor is one (') = 0.01666... degree. The formulae below gives degree conversions for RA and DEC.

1 RA in degrees = 15.0 x hours + 0.25 x minutes + 0.004166667 x seconds

2 DEC in degrees = degrees + '/60

The conversion to pure degrees was dicatated by reliance on calculators and computers. Anyone who prefers ' and " to fractional degrees may alter (1) and (2) accordingly.

The conversion from angular parallax

to linear distance requires a more detailed discussion. The natural unit for our conversion is the parsec, which is defined in terms of parallax with one " of arc equaling one parsec. One parsec is approximately 3.26 light years.

If S is the radius of the Earth's orbit, R is the distance to the star, and PAR the parallax angle; then the following formulae can be used for computing parsec distance.

(3) R = S/tan(PAR) = S x cot(PAR)/ sin(PAR)

(4) R = cot(PAR)/206,264.8404
Where 206,264.8404 is cot(1")

(5) R = 1/PAR

Formula (3) is the trigonometric definition of parallax distance. Insofar as the number for Earth's radius is correct, this is the "true" formula.

Formula (4) is an approximation based on the fact that the cotangent function is almost linear for very small angles. R is thus almost equal to a constant times the cot(PAR), and the ratio of cot (PAR) to cot(1") gives the approximate parsec distance.

Formula (5) is based on the fact that parsec distance is approximately equal to the inverse of the parallax angle, where PAR is in " of arc.

Formula (3) is obviously the most difficult to use. The Handbook uses formula (4). I favor formula (5) because it is the simplest, and because the actual differences between formulae are never significant when compared to the probable position errors. Table One below tabulates the formula differences between (3), (4), and (5) for ten stars. The Greatest Difference column should be compared to the error columns of Tables Two and Three. Note that the errors due to choice of formula (5) are always smaller by orders of magnitude than the probable position errors for the same stars.

Formulae (1), (2), and (5) will convert Catalog data into more uniform spherical polar coordinates. For those readers who do not like spherical polar coordinates, formulae (6) through (11) will give the standard conversions to cylindrical and rectangular coordinates. For spherical-to-cylindrical conversions the formulae are:

(6) p = R x cos(DEC) p is the projection of R into the rectangular XY plane.

(7) θ = RA θ is the angle between p and the rectangular X axis.

(8) z = R x sin(DEC) z is the projection of R onto the rectangular Z axis.

For Spherical-to-rectangular conversions the formulae are:

(9) X = R x cos(DEC) x cos(RA)
(10) Y = R x cos(DEC) x sin(RA)
(11) Z = R x sin(DEC)

Formulae (1) through (11) present the basic mathematics required for the conversion of Catalog data to map data. Anyone possessing a little common sense will have no trouble devising their own maps for nearby space, although a calculator or computer is required for larger volumes of space.

TABLE ONE: Comparison of Distance Formulae

GLIESE NUMBER	NAME	PARALLAX	DISTANCE FROM (3)	DISTANCE FROM (4)	DISTANCE FROM (5)	GREATEST DIFFERENCE
559	Alpha Centauri	.743	1.34565	1.34589	1.34589	.00024
244	Sirius	.377	2.65204	2.65252	2.65252	.00048
15	Groombridge 34	.282	3.54545	3.54610	3.54610	.00065
19	Beta Hydri	.159	6.28816	6.28931	6.28931	.00115
97	Kappa Formalhault	.073	13.69613	13.69862	13.69863	.00250
351.1	Ross 84	.065	15.38181	15.38461	15.38462	.00281
379	DM+75 403	.051	19.60427	19.60783	19.60784	.00357
397.1	DM+57 1274	.045	22.21817	22.22222	22.22222	.00405
388.2	DM-14 3093	.029	34.47648	34.48275	34.48276	.00627
893	DM+38 4955	.013	76.90906	76.92306	76.92308	.01402

1. For formula (3) S= 149,500,000 kilometers.
2. The apparent equalities of (4) and (5) are due to rounding.
3. All distances are in parsecs.

Note that if any approximation is used, it might as well be (5), since the difference between (4) and (5) is always on the order of .00001 parsecs. This is less than three A.U.: an insignificant distance on the interstellar scales.

I shall leave the actual mapping to individual invention, and shall instead consider the probable accuracy of the positions computed by formulae (1) through (11). The problem of map accuracy can be divided into several subtopics.

The first caution is to beware of parallaxes smaller than 0.050". This figure, plus or minus 0.005", is the approximate lower limit to directly measurable parallax. Smaller parallaxes are the result of sophisticated guesstimation, based on theories which concern the internal composition and physical properties of the star under observation. These small parallaxes are not neccessarily useless, but they are not as certain as parallaxes which result from the weighted averaging of many direct observations.

A second caution is against parallax figures which are the result of averaging several types of measurement. Some catalogs will give two or three types of parallax, together with an average figure. When the different types of parallax are radically different, any endorsment of the final average must be cautious. Again, such data is not useless, but it should not be accepted without reservation.

The third caution is against catalogs themselves. Astronomers are only human, and differences may appear in various publications due to error or differences in measurement. An amateur has no way of detecting such errors, save on a case by case basis; but it is possible to guard against overconfidence. Never assume that a star map or list is wrong simply because it differs from your own list.

A final caution is against parallax figures which are not accompanied by error figures. All measurements include some error. When a stellar parallax has no associated probable error, it is likely that observations of that star are either to few or to contradictory to generate a meaningful error figure.

The above are very general remarks, and no meaningful quantitative statements can be made concerning them. The amateur will, in many cases, be forced to live with uncertainty, since these cautions generate dozens of questions for each star, questions which most amateurs will not have the time or the ability to resolve.

We will now turn to questions of positional accuracy, and these questions will be subject to detailed quantitative treatment.

We shall first consider the possibility of errors in RA and DEC. These uncertainties will imply that the star lies in a general region of the sky, rather than in a precisely fixed direction.

The Catalog gives RA down to the ", and DEC down to .1'. Other catalogs give DEC only to the nearest degree. Since parallaxes as low as 0.05" can be accurate to the lowest unit in which they are given. (I am ignoring the possibility of printing errors.)

The question of errors in RA and DEC then reduces to an analysis of the position errors introduced by uncertainties of the lowest unit of measure. If we assume normal rounding, the maximum uncertainties in Catalog RA and DEC will be .5" for RA and .05' = 3" for DEC. If DEC is given to the nearest degree, the uncertianty of DEC becomes .5 degree or 30'.

In spherical coordinates, these errors are easy to interpret, since they fit naturally into the coordinate system. When we attempt to interpret these errors in terms of rectangular coordinates, the

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TABLE TWO: Probable Errors for Ten Stars

GLIESE NUMBER	NAME	PARALLAX (ERROR)			
559	Alpha Centauri	.743(.007)	1.34589	0.025363	0.0126815
244	Sirius	.337(.004)	2.65252	0.056293	0.0281465
15	Groombridge 34	.282(.007)	3.54610	0.176156	0.0880780
19	Beta Hydri	.159(.007)	6.28931	0.443978	0.2219890
97	Kappa Formalhault	.073(.008)	13.69863	3.038935	1.5194675
351.1	Ross 84	.065(.006)	15.38462	2.864645	1.4323225
379	DM+75 403	.051(.008)	19.60784	4.678362	2.3391810
397.1	DM+57 1274	.045(.008)	22.22222	8.159105	4.0795525
388.2	DM-14 3093	.029(.005)	34.48276	12.691007	6.3455035
893	DM+38 4955	.013(.015)	76.92308	80.0*****	40.0******

1. Total error is the sum of the plus and minus errors, and represents a line along which the star can probably be found. The average error is half the total error, although plus and minus errors are never truely equal.

picture becomes more complex. Both RA and DEC affect X and Y; since RA and DEC are independent of one another, no simple tabulation of errors Vs distance is possible. A three dimensional table - a book - would be required to give a full picture of the error functions for angles.

Fortunately a book will not be neccessary. It will be sufficient to give the results of sample calculations, while preserving a full treatment of angular errors for a later project.

Sample calculations indicate that at a distance of 25 parsecs, errors due to DEC are on the order of 0.0001 parsec for Catalog data. For DEC given to the nearest degree, errors in X, Y, and Z are on the order of 0.01 parsec at a distance of 25 parsecs. For closer distances, the error decreases. The errors in position due to RA are even smaller than those due to DEC, since RA is given with six times the accuracy.

In preliminary calculations using Catalog data, it seems obvious that errors due to RA and DEC will be even smaller than the Greatest Error listed in Table One. In comparison to the distance errors discussed below, position errors due to RA and DEC will be utterly insignificant.

The Catalog gives three types of parallax, together with a weighted average of the three. Probable errors are given for each parallax, when known. Table Two gives errors for the ten stars of Table One.

1. Total error is the sum of the plus and minus errors, and represents a line along which the star can probably be found. The average error is half the total error, although plus and minus errors are never truely equal.

Several observations can be made from Table Two. First, any given magnitude of error becomes more serious as the distance from Earth increases. An error of .008" at 1.35 parsecs is on the order of 0.01 parsec. The same error at 22 parsecs is on the order of 4 parsecs.

Second, errors in position which are due to parallax uncertainty overshadow all other errors. The error introduced by the choice of formula (5) is never less than two orders of magnitude smaller than the probable position error for these ten stars. The error due to RA and DEC inaccuracies is even smaller than the error due to formula choice.

Third, we can expect the accuracies of our star maps to be ludicrous by Terrestrial standards. The best we can realistically hope for is to locate a few stars to within 0.01 parsec. This is rather like knowing that New York City is somewhere within the solar system: not very impressive, and this is the best we can do. As we go farther from Sol, we can expect errors of twenty to thirty percent to become commonplace.

Fortunately, errors which would damn any other type of map are tolerable in a star map. A star is a rather hard

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TABLE THREE
Sample Position Error Ranges for Selected Interstellar Distances

Distance	ERROR in " .001	.002	.003	.004	.005	.006	.007
2	0.0040	0.0080	0.0120	0.0160	0.0200	0.0240	0.0280
5	0.0250	0.0500	0.0750	0.1000	0.1251	0.1501	0.1752
10	0.1000	0.2001	0.3003	0.4006	0.5013	0.6022	0.7034
15	0.2251	0.4504	0.6764	0.9033	1.1314	1.3610	1.5926
20	0.4001	0.8013	1.2043	1.1610	2.0202	2.4351	2.8560
25	0.6254	1.2531	1.8856	2.5253	3.1746	3.8363	4.5132
40	1.6026	3.2206	4.8701	6.5681	8.3333	10.1868	12.1528
80	6.4412	13.1363	20.3735	28.5202	38.0952	49.8960	65.2681

Distance	ERROR in " .008	.009	.010	.011	.012	.013	.014
2	0.0320	0.0360	0.0400	0.0440	0.0480	0.0520	0.0560
5	0.2003	0.2255	0.2506	0.2758	0.3011	0.3264	0.3517
10	0.8052	0.9073	1.0101	1.1135	1.2175	1.3223	1.4300
15	1.8263	2.0626	2.3018	2.5443	2.7904	3.0406	3.2953
20	3.2841	3.7205	4.1667	4.6238	5.0934	5.5770	6.0764
25	5.2083	5.9250	6.6667	7.4375	8.2418	9.0846	9.9715
40	14.2602	16.5441	19.0476	21.8254	24.9480	28.5088	32.6340
80	*******	*******	*******	*******	*******	*******	*******

1. All distances are in parsecs.
2. Probable errors of over twenty percent should be specially noted on the map. Probable errors of over fifty percent should be omitted from any serious map.

thing to misplace, so an error of as much as ten percent is not unendurable for an amateur product.

A final observation concerns the last line in Table Two, (in which the probable error exceeds the averaged parallax). One must use a grain of common sense in cases such as this. Obviously, it is meaningless to say that a star is 76 parsecs away, plus or minus 40 parsecs. If the star in question were that much closer, we would probably know it. What this type of error really means is we have no idea where the star is, except that it is somewhere "that way".

Table Three gives the range of errors for selected interstellar distances. These are average errors, given in parsecs; and strings of *s indicate an error so ludicrous that no meaningful distance figure is possible in the first place.

How seriously should we take the position errors which plauge us? A map is no good if two-thirds of its entries are 50% off, unless one is creating a conversation piece or a game board. But, the farther we go from Sol the less demanding we can be about accuracy.

Each person must set their own accuracy standards. I favor using all available data, but including probable distance error as part of the secondary data. This gives a map of all available stars, but preserves a sense of accuracy and uncertainty which keeps me from being too smug.

A short remark on automation of star mapping is also in order.

The process of star mapping, which involves performing repetitive calculations on massive amounts of data, is a natural computer application. It is doubtful if any single man would care to work through the data on several thousand stars. It is even more doubtful that the final product could be finished in any short period of time, unless quality were sacrificed.

It would be pointless for me to give a program listing here. Any one who has a smattering of computer knowledge will be able to produce their own programs; anyone with no knowledge of computers will be unable to benefit from an example. What I can do is to give a few cautions to inexperienced programmers.

First of all, do not place blind faith in your program. Set aside a set of test data - forty stars chosen at random will do - and work all computations through with the aid of a calculator. This will reveal errors in programming logic, and give you an initial test of program accuracy. A second and even better test is to choose twenty stars whose location is listed in another publication, and use them as a test of your program. Stars within five parsecs are best for this test.

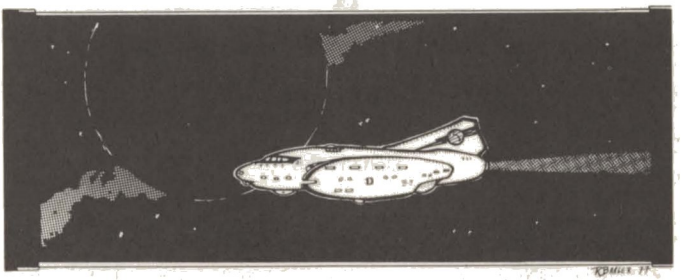
Second, edit your data carefully. If you are an average programmer your worst errors will come from punching up your data. Expect one error each sixty to ninety characters, double-check everything, and use a programmed drum when you can. Even if you are an expert keypuncher, you should double-check you data. Your program can only use what you give it, but it can usually be counted on to produce monstrous but plauseable errors from your mistakes.

The optimum situation is to have your own computer. Few of us are that lucky, but if you are fortunate enough to own a programmable calculator you may be able to fake it. An SR-59 with printer or an HP-79 can process data and produce a hard copy as quickly as you can key data in. If you have trouble keypunching, the use of a calculator has the added advantage that calculations can be edited on the spot. This approach is less convenient than a full computerization, but it has its advantages.

Sources:

1. This Quarter of the Universe is Ours! A Handbook for Building Three Dimensional Star Maps, by J. Richard Filisky, Theta Enterprises, Richardson, Texas, 1976.

2. The Catalogue of Nearby Stars, Edition 1969, W. Gliese, available on interlibrary from the University of North Carolina, Math-Physics Library.



.....Eldon Tannish.....

&
THE WAR OF THE WARP

by
Dana Holm

WarpWar is a beautiful little game. It has several interesting features - designing your own ships, simultaneous combat, and diceless combat resolution. However, the game suffers from being too evenly balanced. Whoever moves first has the advantage.

To overcome this first move advantage, a scenario where no stellar movement takes place has been designed. This scenario also uses an unbalanced initial force allotment with differing reinforcement rates which is one cure for a symetrical game.

The idea for this scenario comes from the Eldon Tannish story in THE SPACE GAMER #5. Here, Eldon was defending a planet against attack. This one game had no other players, only Eldon and the computer. He was given an allotment of resources to construct his defenses. This was the point that caused me to try the WarpWar game system. There is a two player version or a solitaire version, to be played against a paper computer. Like Eldon, you will lose! The idea is to see how long you can hold out.

TWO PLAYER VERSION - Eldon Tannish (Komal) vs. Computer (Kchul raiders)

I. Introduction - All ships used in this game are systemships. Eldon has been left by a warpship to protect this border world. The Kchul ships are carried into the system and dropped beyond sensor range by two warpships acting like ferries. The two warpships never appear in the game. Since all action takes place at one star system, the map and counters are not needed. They are useful as memory aids or for visual effect. Watch Eldon quiver when you have 13 ships against his one remaining defender.

II. The Game

A. The game is played on two levels using two types of turns.
   1. The strategic level (strategic turn)
      a. All building, repairing, and resupply takes place at this time.
      b. No combat ever occurs during strategic turns.
      c. The game starts with a strategic turn.
      d. Every fifth turn thereafter is a strategic turn.
   2. The tactical turn (battle turn or tac turn)
      a. Combat takes place during battle turns. No building ever does.
      b. There are four (4) battle turns between each strategic turn.
      c. Victory conditions are in terms of battle turns (See section V)

B. Only strategic turns count towards the technological level rule. On strategic turn 5 (after 16 battle turns) the technological level goes up one as per regular WarpWar rules.

III. Player building point (BP) allotments

A. Eldon Tannish (Komal)
   1. Initial allotment - 50 BP
   2. Reinforcement-repair-resupply allotment - 25 BP per strategic turn.
   3. Eldon may build things other than ships (See section IV)

B. Computer (Kchul raiders)
   1. Initial allotment- 30 BP
   2. Reinforcement-repair-resupply allotment- 25 BP per strategic turn.
   3. Kchul raiders may build only ships.
   4. Kchul raiders must use each allotment as it arrives. He may not save up BP's. Any unused BP's at the end of a strategic turn are lost.
   5. The Kchul player does not have to commit his force to battle on the first battle turn. He may enter any or all of his force at any time during the course of the battle, during a battle turn.
   6. Once a Kchul ship has entered, it stays until the end of the game.

IV. Special rules

A. Eldon's ship restrictions
   1. Eldon may build ship(s) from his initial allotment only.
   2. No BP's have to be spent on ships. All BP's may be spent on ground defenses.

B. Ground defenses- Eldon may build these with any allotment of BP's. He may build either or both types.
   1. Ground energy projectors (GEP)
      a. GEP's cost 2 BP's for a one strength point unit. (This reflects the gun and the power plant needed to operate it.)
      b. GEP's may be built in only one strength point denominations.

c. As many of these one strength units as desired may be produced, within the amount of BP's available.
d. It takes one missile or one beam hit to destroy a GEP. Any extra force is wasted. (Attacking with one ship firing a beam of 10 only destroys one GEP. This is because of their geographical separation.) Each GEP must be attacked separately.
e. GEP's may combine attacks on enemy ships in any desired combination.
f. GEP beams are assumed to have a speed of one (1) when attacking.
g. GEP's use the attack tactic when firing, the retreat tactic when not firing.
h. GEP's may not be attacked until: they have fired or until all friendly ships have been destroyed or have had their firepower destroyed.

2. Ground launched missiles (GLM)
a. GLM's are in all respects like spaceship launched missiles except that their maximum speed is six (6). (The atmoshpere slows them.)
b. GLM's are purchased at the cost of 2 GLM for one BP. (This includes the cost of launching apparatus)
c. Because of their small size and easy-to-hide characteristics, GLM's may not be attacked from the air. (Refer to victory conditions, section V)

C. Special uses of existing weapons
1. Kchul raider attack against ground targets.
a. When using missile attack, the ship may use any drive setting and any tactic. The missile may be at any speed.
b. When attacking with beams (since the attacker would have to enter the atmosphere to achieve accuracy) the attacker must use the attack tactic and can use drive settings of only 3 or less.
2. Eldon's technological gain - Starting on strategic turn five, if Eldon has any ships left, those ships gain the capability to absorb energy from GEP's
a. GEP's may be fired singly or in any combination at Eldon's ships, instead of firing at enemy ships.
b. Instead of damaging Eldon's ships, the energy is absorbed and added to the current P/D or energy pool of the ship. It then acts in all ways like energy generated by the ships engines. It is possible to have a higher P/D setting than the ship was originally designed with. This in no way harms the ship.
3. Ramming (Optional rule)- The players should decide if both, neither or just one player can use this option. This will change the play balance some.
a. When ramming is selected as a tactic, no energy can be expended on beams, screens, or launch tubes. All energy must be alloted to drive.
b. Ramming takes place after all fire for that turn has been resolved. Also any damage that the ramming ship takes is subtracted from it's drive setting before the collision.
c. Only one enemy ship can be rammed with each friendly ship.
d. The energy in the ship's drive is applied in one large explosion against the enemy ship that is the target of the ramming.
e. The ramming ship is automatically destroyed. (The drive differences between ships are ignored. It is assumed that ramming takes one by suprise and thus can not be dodge. Likewise the target ships battle tactic has no effect. If there is any energy in the drive the ramming will succeed.)

V. Victory conditions

A. It is best to play a set of two games. Each player designs his starting force for both sides. Then play a set of two games. The person lasting the longest as Eldon wins. Eldon is finished (beaten) when all BEP's and all ship's firepower have been destroyed. GLM's may remain but they do not count as firepower. If each Eldon player goes out on the same turn, the Kchul player with the largest BP total on the board would win.

B. For those players wanting to play only one game - count the number of battle turns that Eldon lasts.
1. 8 or less - You didn't make the finals. In fact, how did you get this far? - Strategic Kchul victory
2. 9 - 12 turns - No finals here either. - Descisive Kchul victory
3. 13 - 16 turns - Tactical Kchul victory
4. 17 - 20 turns - You made the

finals!! - Moral victory for Eldon
5. 21 - 24 turns - That humming you hear is the computer getting mad!
6. 25 - 28 turns - You tied the record
7. Longer than 28 turns - The computer must be broken!

R.P. BARKER '77

SOLITAIRE VERSION - Eldon Tannish vs. Computer

I. This game is played like the two player version with a few changes so the dumb computer has a chance. It requires the use of a die to make decisions for the computer.

II. The changes

A. The computer starts with twice the force he had in the basic two player version. The computer's staring forces are: S4, S5, S8, and S13 (Refer to the computer's ship characteristics chart.)

B. The computer must enter into battle, on battle turn one. It may never hold back forces. It's reinforcements come in as fast as they are generated.

C. Sequence of play
1. Enter the computers ships.
2. List targets for Eldon's ships and ground defenses. Allot P/D points. Pick tactic.
3. Use the computer target table to pick target for each of the computer's ships. If Eldon had more than one ship roll a die to see which is attacked.
4. Use the tactic table to decide what tactic each of the computer's ships is using. Remember a beam ship attacking a ground target must use the attack tactic. If any ground attacks are made when there are no targets, the attack is wasted.
5. Determine the setting of the ships offensive weapons (beams or tubes) by rolling one die. Any number in excess of number of offensive weapons is ignored.
6. Determine the screen setting of ships carring screens and not using missiles by rolling one die. Again ignore any excess during dice rolling.
7. Any remaining energy is ussed for the drives. If the drive/power does not contain enough energy to run offensive and defensive weapons, the defense suffers first until it is zero, then the offensive setting is reduced to the P/D setting. Any ship with P/D = zero is considered destroyed.
8. Resolve all attacks. Damage does not take effect until all firing is finished.

D. When the Kchul fires a missile, determine its speed by rolling one die. That number is the missiles speed unless the number rolled is a one (1). In that case, roll the die twice and add the two rolls together to get the missile's speed.

E. The largest drive setting Eldon's ships can use during the game is six.

F. Kchul resupply
1. Each strategic turn the Kchul receives new ships and repair points according to the Kchul generation table.
2. In addition, roll one die - the Kchul gets this number of additional repair points.
3. Repair points are always distributed as evenly as possible. When in doubt, roll a die.
4. All Kchul missile firing ships are automatically reloaded up to their original capacity.

III. CHARTS

A. KCHUL SHIP CHARACTERISTICS TABLE

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
P/D	8	4	4	6	10	3	6	1	2	7	7	12
B	4		2		5		3		2			6
S	2		1		4		1		0			6
T		3		4		2		1		4	6	
M		9		12		6		3		12	18	

B. KCHUL SHIP GENERATION CHART (Kchul Reinforcement-Repair Chart)

First Die Roll \ 2nd Die Roll	1	2	3	4	5	6
1	S1,S2 + 1 RP	S5,S3	S2,S7 + 5 RP	S4,S8,S9 + 4 RP	S1,S3 + 4 RP	S10,S6 + 2 RP
2	S5,S6	S7,S7,S8 + 1 RP	S12 + 1 RP	S6,S6,S6 + 4 RP	S1,S2 + 1 RP	S6,S9,S4
3	S3,S11	S1,S7	S2,S2 + 5 RP	S3,S10 + 2 RP	S2,S4 + 1RP	S2,S4,S6 + 1 RP
4	S1,S3,S9	S8,S9,S10 + 3 RP	S3,S5,S8, S9 + 1 RP	S4,S5,S9	S12 + 1 RP	S3,S4,S9 + 1 RP
5	S6,S7,S8, S9 + 1 RP	S2,S7,S8 + 2 RP	S2,S3,S6	S3,S5 + 4 RP	S10,S7	S2,S7,S8 + 2 RP
6	S3,S4,S8 + 1 RP	S8,S11 + 3 RP	S5,S9 + 2 RP	S4,S7 + 1 RP	S2,S7,S8 + 2 RP	S7,S10

RP = repair points

C. KCHUL TARGET SELECTOR - roll one die

1 - 5 attack a ship (When no ships remain, attack a ground unit)
6 make an attack on GEP (If there are none, the attack is wasted)

D. KCHUL TACTIC SELECTOR - roll one die

1 - 3 attack tactic
4 - 6 dodge tactic (unless it is a beam ship on a ground attack, in which case the attack tactic must be used)

IV. PLAY AIDS - Of course you have to keep track of the damage levels of the ships on both sides. I find that making a set of tracks for each side and using flipped over counters it is easy to see at a glance what level each of the ship characteristics are at. A second set of right side up counters can be used to show what level each item is being used at the current turn. Actually, one set of tracks per side will work because Eldon usually doesn't have many ships and attacks can be resolved one at a time.

CREATING A CONSISTENT UNIVERSE

by
Norman S. Howe

DUNGEONS & DRAGONS, TUNNELS & TROLLS, MONSTERS! MONSTERS!, and other fantasy role-playing games are merely rule outlines for creating and using fantasy worlds. They are not complete games; to them must be added the imaginations of game-masters and players alike. The Dungeons and Wildernesses I have seen, and even some I have created, tend to resemble each other closely. The monsters, traps, and treasures are ragged patchworks of all the fantasies their authors can conceive. Few of these worlds are convincing. There must be a better way to build a universe.

A few years ago, Poul Anderson wrote a sketch entitled "A World Called Cleopatra." The sketch was originally a world-outline for use in a story or novel, but Mr. Anderson chose to publish it for its own sake. Later, he and two other authors wrote stories based on that world. This method can be used in dungeon-delving as well: first, create a coherent world; then create Dungeons and Wilderness Adventures within it. The first such creation will be very difficult, but the experience gained will be worth the effort.

The size and complexity of a fantasy universe is limited only by the game-master's resistance to mind-boggling. For some, this limit may be a single, multi-story building. Others may go up to a few acres, square miles, nations, or continents. Some will be capable of designing solar systems, globular clusters, galaxies, and entire parallel space-time continua. I prefer to work with planet-sized bodies, on the grounds that fantasy characters in the Swords and Sorcery genre rarely go to Space, but they frequently circumnavigate the globe. (At this point, people cry out about Geomorphic maps and what not. On a strategic scale, this can be approximated. I built a planet-cube, once; another option is to use an equal-area projection such as the National Geographic society uses for its Lunar map. This gives you a two-sided disc; easily simulated on a hexagonal grid.)

Geography is the simplest consideration in building a world. More difficult is to populate this universe. Begin with a Theme. Is this a new world, or an old one? Was it created by Gods, or did it evolve "naturally"? Who lives here; what cultures, myths, monsters, planets, and beasts are found? What history is there? Many factors must be considered.

The races of the fantasy world must be constructed with care. They must be given languages and customs, technologies, literature, occupations, religions, social structures, systems of currency. They will have wars and feasts, friends and enemies, laws and politics and philosophies. To some extent, one must even devise architecture. If the culture is a stone-age one, the people will live by hunting and primitive farming. They will have stone weapons, and reed armor. Shamans will perform their magic, which will be survival-oriented. Higher cultures will have more and more elaborate technologies, lifestyles, rituals, and social structures.

Flora and fauna must also be considered. Will there be trees and grasses, flowers and fungi, algae and ferns? What are the herbivores, carnivores, parasites, and omnivores? What lives on the land, in the sea, in the air? What is tropical, what is arctic?

Finally, one must create the fantastic. Who are the Gods, and their offspring? The demons, and their offspring? What are the Monsters: mutants, punishments of the Gods and Demons, things from other universes, or merely horrifying, but otherwise natural, animals and intelligent beings? What magic is there? What alien or ancient artifacts of power are there? What are the limits on such phenomena?

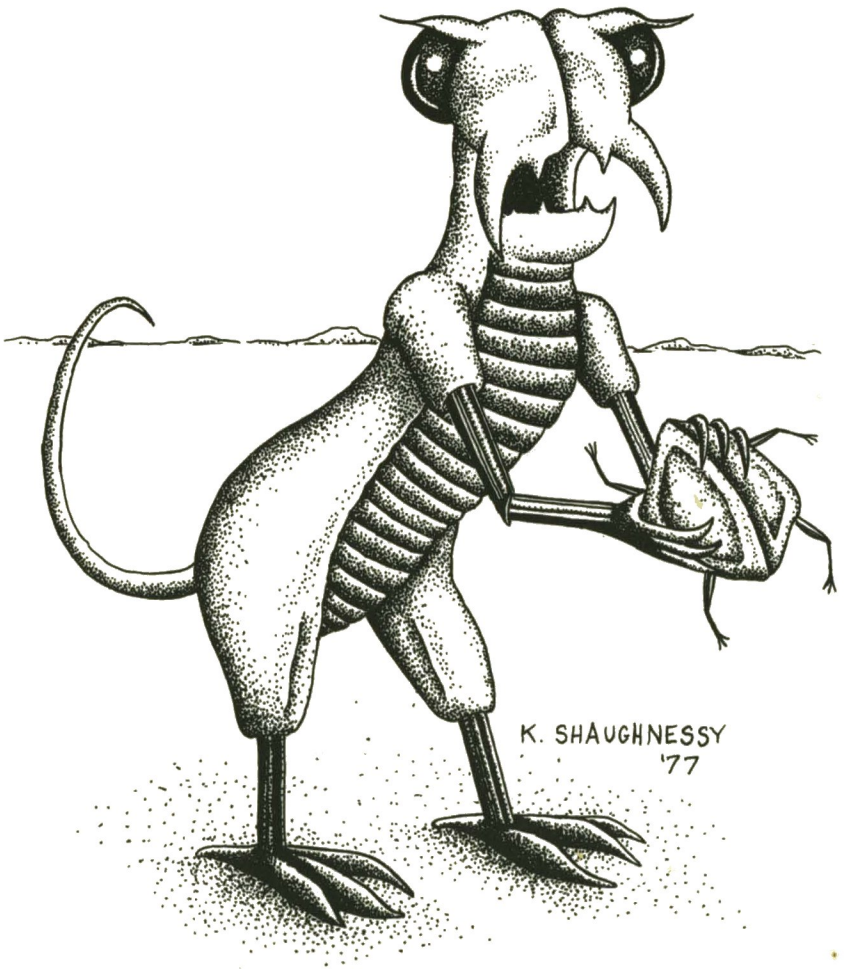
To create an entire universe of whole cloth is hard work, and I do not suggest that anyone try it. There are shortcuts which may be taken. A good history or geography of ancient times and primitive civilizations will provide ample material for populating a globe, even to myths and monsters. Most planets and animals can be inserted intact from good-old Terrestrial Biology.

One can even go all the way and

create a "realistic" universe by stealing an entire world. To do this with a modern author's works is gauche, and probably illegal, but ancient mythology is fair game. The world of Greek and Roman mythology presents itself for the taking. All the action takes place within the bounds of real geography, even Tartarus and Olympus are found within the Mediterranean lands.

Using a real universe places certain constraints on a game-master and his fellow-players. For example, in the Greco-Roman world described above, a player would not find goblins, orcs, purple worms, or ents; he could not use crossbows or chain mail, because these had not been invented. His armor would be of leather or bronze, and his faithful clerical friend would worship Zeus, Artemis, or Ares. Use of magic would be very limited, except by the gods themselves. As well, there must be great care taken to leave nothing of importance out. For example, D&D's Gods, Demi-gods, and Heroes commits some unforgiveable omissions of major gods in the Greek pantheon! Where is Aphrodite? Where is Artemis? Even the limits of the world must be closely defined. In my example, the world is a flat disc, with Olympus at its center. The edge is just beyond the edge of the Eurasian and African Continents, where Oceanos blends off into formless Chaos.

The realistic universe is painful to create, but is also worthwhile. It is a work of art. Its consistency will reduce arguments with players who want to exceed the bounds of the game; the limits are so clearly defined that they cannot be mistaken. And there is no pleasure greater than realizing that the world you have created works perfectly, because it is real and complete.



RATIONALE IN SF GAME DESIGN

by
Tony Watson

Ask a wargamer to name the prime difference between a historical game and one of as SF nature, and he'll most likely reply that a historical game deals with events that have happened and SF games deal with those that have not, but might.

There is a big difference here, larger than one might at first think. It is a difference that is not always readily apparent in the end result; a number of SF games tend to play quite similarly to historical wargames. Traditional ways of thinking tend to produce traditional ways of playing.

Now, granted, there is only so much that can be simulated with existing techniques. Games systems are limited and the state of the art evolves slowly, so similarities are to be expected. But innovations are possible, especially in games of this nature. The designer must first see that he is basing his game on material of a purely speculative and imaginative nature. He must understand the possiblities of "where he's coming from."

The element of an SF game that really gives it the feel of an SF situation and provides a base for the rest of the game to stand on, is the rationale. For our purposes, we shall define rationale as the set of basic premises from which the game mechanisms are developed, a concept analagous to the historical basis of a standard wargamw.

The designer of a historical wargame has a given set of facts to work from. A designer attemption a game on Alexander the Great's vicotry over Darius at Gaugamela would have the various accounts to examine as an aid to setting up a game system. he has articles and books dealing with the armies involved, as well as their tactics. From these he can determine such things as movement and combat factors, plus their relative strengths vis a vis the opposition. His interpretation of this data will determine the nature and accuracy of his final product.

The SF game designer has no such wealth of information to work with. This creates a dichotomy; while the designer is not restricted by the need to comply with history's precedent, he is also without guidelines, save those he applies to himself. This is where a rationale can be very important to a game; it sets down what a designer wishes to simulate and often saves him from a 'wandering' design effort, and possibly a poorly conceived game.

Novels have been the source of inspiration for some SF games: LENSMAN, THE YTHRI and of course STARSHIP TROOPERS, coming off with varying degrees of success. LENSMAN used many of the terms from Doc Smith's books and perhaps recreates the situation in a broad strategic sense, but details are certainly lacking and one can easily forget the game's source during play. The result is a good game but one not particularly rich in literary feel. THE YTHRI attempts to bring to the game board Poul Anderson's The People of the Wind, but is forced to ignore some of the more pertinent aspects of the book in order to achieve a more military game.

STARSHIP TROOPERS is a fine example of a novel serving as a rationale for a game. Most SF game players/readers that have delved into both the book and the game have remarked on the fidelity of the transference of a considerable wealth of detail from the book to the game. The rules framework and scenarios provided can very nearly recreate the Mobile Infantry raids at "Bug House" and "Planet P". Heinlein's novel is given a remarkable 'game' life; one feels that he can "make the drop" right along with Johnny Rico.

Another medium of fiction, television, is not without its claim to fame via simulations. Among a plethora of other items, the phenomenally popular Star Trek series has spawned a number of offerings, the best being the Gamescience STARFLEET BATTLE MANUAL.

We have dealt briefly with games coming from fictional rationales; but the vast bulk of SF games are derived from original or semi-original sources. These rationales can be very evident in

the game itself, even included as a special section of the rules or designer's notes. In others, the rationale is not included per se, but becomes evident with play of the game. The design framework and designer's perspective slowly becomes apparent with a closer examination of the game. A third category also presents itself: games that seem to have no rationale at all. Such a lack invariably shows in the final product; the nomenclature "turkey" is often too kind.

A game that stands out as having an excellent non-literary rationale is SPI's STARFORCE. Designer Redmond Simonson has not only given us an excellent and unique game, he has taken the time and imagination to create a very rich future-history to serve as a backdrop to the wars depicted in the game. The rationale of a select group of telesthetically gifted females, flitting from star to star and engaging in nearly bloodless space battles via psionic powers is imaginative science fiction. In the game, these unique aspects come across very well; the player gains a feel for Simonsen's possible future as much as he learns the mechanics of the game. The strength of the STARFORCE rationale is clear, in that it has supported two offspring games: STARSOLDIER and OUTREACH.

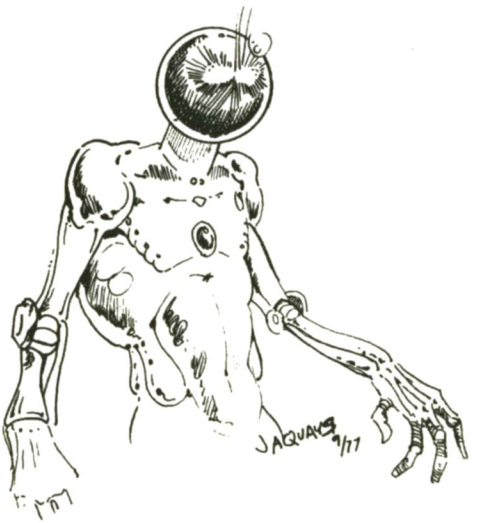
By the same token, the Introduction to the MicroGame, OGRE, helps one to accept the future battle field portrayed, as well as giving us an idea of just what OGRE is about. Without such knowledge (the explanation of the Ogre as a cybertank), the game would lose much of its flavor.

STELLAR CONQUEST is an example of the second type of game with an origianl source. Not based on a novel or involved future history, it nevertheless has a good, strong framework behind it. After a few games, players will see what base the designer was working from. Obviously, demography was an important concept, and certainly building a strong industrial base and technology are crucial in play. It would appear that the designer wished to simulate a situation in which rapidly expanding galactic societies compete against each other with increasingly numerous and better ships. WarpWar on the other hand, posits a future in which the selection of correct tactics is of prime importance, and mass is not so crucial.

Is a strong rationale really important? I think so. Without it, a game might just be a rerun of some WWII game recostumed with spaceships and energy weapons, or worse, an incredible morass of SF jargon, weird rules, and bizarre silhouettes. More important, a good rationale imparts a strong feel for the SF situation the game deals with, an esthetic plus. Games from novels have a special value; if both are good, they can mutually enrich one another. Reading the novel enhances the game, just as a good historical account increases appreciation of a wargame.

Rationales add considerably to the aesthetic value of a game. A good fictional basis can provide for an excellent game, strengthening the system and feel of the offering.

Reduced to basic terms, the rationale behind an SF game is <u>the</u> science fiction element of the game; all else is really just mechanics.



MODIFICATIONS IN OGRE

by
Brian McCue

All of the versions of OGRE are good games, but two of the suggested variations seem to beg for modifications. These were the Duel scenario and the Solo Play.

Many games which advertise a solo version (e.g. AH's JUTLAND) merely set up a system for randomizing the strategies of the two sides, leaving the player with little to do. In OGRE, it is suggested that one predetermine the strategy for one side, and play the other side actively, as if against an opponent. But if one can be certain, for example, that the ORGE will charge straight in, one can set up a "turkey shoot" defense to bombard the thing as it goes by. There would than be little feeling of playing a game or combating an intelligent machine.

My method of solo play is a combination of the two above; I randomize the Ogre's play, and defend against it. Here's how to set it up: make ten cards, five labeled "Advance" two each labeled "Go left" and "Go right" and one labeled "Attack rear." Shuffle these and remove one from the pile, setting it aside without seeing what it says. Now set up your devense as against a real opponent. Put your command post and the Ogre on the center line of the board.

To play, shuffle the Ogre's cards and draw one, follow the orders on it in a sensible manner, and conduct the defense as you see fit. You will have to make some choices for the Ogre, particularly how to apportion the weapons among the available targets, but such choices can be made consistently if not automatically. You could even expand on the card-drawing system.

The purpose of that unused card is to prevent you from knowing the exact likelihoods of the various Ogre tactics. As the game progresses, you can begin to guess which card the Ogre is missing. (But beware that Attack Rear order, which often appears after you've ruled it out!)

You will probably find that you can beat the automatic Ogre too easily. I recommend the following remedies:

1) Move your command post closer to the front.
2) Limit yourself as to howitzers.
3) Simply cut down on the strength of the defense.

Number two alone may not do it, and number three could lead to boring games. Number one can give you any level of excitement or challenge you want. Whenever you win a game, move the command post two spaces forward for the next game, and move it back two whenever you lose. It will stabilize somewhere, giving you an even match against the Ogre. After all, the Ogre is supposed to be as smart as a person.

The Duel scenario, however dramatic, seemed to me to be lacking in strategic content. After re-reading one of Laumer's Bolo stories, I realized that one should-not know exactly what damage the enemy Ogre has sustained, and that Duel in particular would be a better game with that feature. I set about drawing up a workable system which would prevent each player from knowing his opponent's losses, and yet keep both players honest.

Before the game, both players make a secret Combat Results Table. Each column must have the same entries as in the standard table, but they may be rearranged in any manner.
For example:

Note that the D's have been changed to NE's because they are the same for purposes of hitting Ogres.

During the game, the players keep track of their die rolls. They record the roll, the odds, and the target on a turn-by-turn record sheet. Each player secretly manages his Ogre Record sheet, using his secret combat results table, and being sure to note when each hit was taken. At the end of the game, skeptical players (i.e. losers!) may compare the opponent's combat odds table, die roll record and Ogre record to their own die roll records to verify that sufficient strength was available to make each attack. Any player found to have erred in his bookkeeping is held to have lost. I advise using Mark III Ogres in order to keep the paper work to a minimum.

NEWS & PLUGS

Tom Reamy, a local Texas writer, winner of the 1976 John W. Campbell Award for Best New Writer and the Nebulus Award for Best Novella ("San Diego Lightfoot Sue"), died November 5, 1977, at the age of 41. He was living in Kansas City at the time of his death.

Games Centre is no longer METAGAMING's agent for European/English sales. This arrangement was discontinued in September, 1977, by METAGAMING. No foreign agent will be named to replace Games Centre for the time being. METAGAMING does not sell to or honor any orders received from outside the United States and Canada.

From Ken St. Andre: "I'm sick and tired of D&D players assuming T&T players do not exist. To correct the non-existence problem, Ken St. Andre proposes to publish a national directory of TUNNELS AND TROLLS players, to be made available at a nominal cost to whoever would like to have it in early 1978. To accomplish this, I need your support. If you are a T&T player, no matter how much a novice or an expert, and would like to be included in the new T&T directory, all you have to do is send me a postcard with some information on it. This directory will be printed photo-offset and include art by Danforth, Carver, and the finest fantasy artists I can get. Price has not been set, but it will be kept as low as possible. The people listed will be grouped by city and state so that you can discover other players in your own area if you didn't know about them before. The information wanted is: name, address, age, sex. Dungeon name if any. Number of levels contained and a 2 or 3 word description. Favorite character name, type, and level. You may include further information, but I don't garantee it will be included. The directory will also include MONSTERS! MONSTERS! players, and should contain the same kind of information about them. Substitute and monster's target city for the dungeon name, and your favorite monster's vital statistics instead of a favorite character." Send this information on a postcard as soon as you can to: Ken St. Andre, T&T directory; 2232 E. Pinchot, #8; Phoenix, AZ 86016. Inclusion is free.

ORIGINS 78, presented by the Metro Detroit Gamers, is going to be held at the University of Michigan, Ann Arbor, on July 14, 15, and 16, 1978. Among the planned activities are large miniatures participatory tournaments, expanded exhibits, an extra large D&D tournament, non-tournament events, and a new series of national awards for excellence in miniatures. For further information, send a self addressed and stamped envelope to Metro Detroit Gamers, c/o Al Slisinger; 19941 Joan; Detroit, MI 48205.

WARCON IV will be held January 27-29, 1978 at Texas A&M University. The METAGAMING staff will attend for the third year.

GENCON SOUTH, sponsored by the Cowford Dragoons and TSR, will take place February 10-12, 1978. The Jacksonville Hilton, the area's largest convention site, was selected for the activities because if offers ample exhibiting and gaming space. Assisting the Cowford Dragoons will be the International Plastic Modelers Society which will sponsor model contests. GENCON SOUTH will be the larges annual wargame convention held in the South and all manufacturers and exhibitors are urged to participate. For more information write Carl Smith, Cowford Dragoons; 5333 Santa Monica Blvd. N.; Jacksonville, FL 32206; or call (904) 733-3796.

On January 13-15, 1978, the MIT Strategic Games Society and the American Wargaming Association will present Wintercon VI, in Cambridge, Massachusetst. There will be gaming, a "Western Gunfight" tournament, miniatures, among other activities. For further information, contact: Paul Bean; 13 Grove, Apt. 7; Boston, MA 02114.

Aggiecon IX will be held on the Texas A&M campus in College Station, Texas, from March 30 through April 2, 1978. Guest of Honor was announced as Philip Jose Farmer, but Mr. Farmer had had a heart attack and will not be able to make this convention. Rumor as to a substitute are just that, so we will not report them at this time. The other events, movies (THE WAR OF THE WORLDS, 2001, FUTUREWORLD, WIZARDS, THX-1138, SILENT RUNNING, and SLAUGHTERHOUSE-5), dealer's tables, panel discussions, art displays, NASA displays & films, parties, and more, will all be held as scheduled. It is advised that all out-of-town guests purchase tickets in advance because last year's con was a complete sell-out and seating is limited. For more info: Sven Knudson, Chairman AggieCon IX, MSC, Texas A&M University, P.O. Box 5718, College Station, TX 77844.

LUNACON '78 sponsored by the New York Science Fiction Society--The Lunarians, Inc. will be held February 24-26, 1978, at the Sheraton Heights, Hasbrouck Heights, New Jersey. For more information and memberships, write: LUNACON, c/o Walter Cole; 1171 East 8th Street; Brooklyn, NY 11230

DunDraCon, The science fiction, fantasy, and role-playing game convention, returns for its third year, February 18, 19, and 20, 1978. The convention will be held at the Leamington Hotel in Oakland, where there will be plenty of room for hucksters, seminars, gaming (STELLAR CONGUEST, OGRE, DUNGEONS AND DRAGONS), films and demonstrations. For information, write: DunDraCon III; 386 Alcatraz Avenue; Oakland, CA 94618.

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In response to many requests for aid in contacting local gamers, THE SPACE GAMER will give brief mention to clubs that do some science fiction and fantasy gaming. Send the name of the club, address, and other pertinent information to METAGAMING: Box 15346; Austin, TX 78761.

The Austin Wargamer's Club meets every other Saturday, at 1:00 pm, at the Old Quarry Branch Library, 7051 Village Center Drive, Austin, Texas. All wargamers are welcome. For information, call Mike Rose- 452-3923, or Kenny Green- 444-5003, or Joe Gibson- 452-7730.

The MIT Strategic Games Society (MITSGS) meets all day Saturday and Sunday at the Walker Memorial Building; Memorial Drive; Cambridge, MA. Games played include SPE, Avalon Hill, D&D, Traveller, miniatures. The MITSGS is co-sponsor (along with the American Wargaming Association) of the semi-annual conventions: WINTER and SUMMERCON.

THERE AND BACK AGAIN is West Coast Games' name for their fantasy game based on Tolkein's "The Hobbit". Components include: 8x10 playing map, rule booklet, 100 counters, and 2 chart cards. It all comes sealed in a zip-lock bag. Price is $5, and is available from West Coast Games, 1987 Santa Maria Way, Sacromento, CA 95825.

INTEREST GROUP: San Franscisco- Adult gamers are invited to attend the meetings held every Friday night at the house of Steve Spoulos, 118 Eastridge Circle, Pacifica, CA 94044 (415-355-1683), 6:30pm to the wee hours. ACQUIRE to WAR IN EUROPE. Bring your own refreshments, 25¢ per person for the club treasury.

ARCHWORLD is the new fantasy miniatures rule book from Fantasy Games Unlimited. Mike & Sheila Gilbert have created a 76 page volume of complete fantasy campaign rules for people who feel other miniature systems have too much paperwork. It is 3 1/2x11 and has a heavy stock green cover. The art is excellent. Cost is $6 from Fantasy Games Unlimited, P.O. Box 182 Roslyn N.Y., 11576. It will be reviewed in a future issue of TSG.

CENTRAL FLORIDA STRATEGY & TACTICS ASSOC. Write to: CFSTA, 4020 Seabridge Dr., Orlando, FA, 32809. Give name, address, & area, phone, games they own, mags subscribed to. Ask any questions.

ORBIT WAR is a boardgame for 2 to 4 players. The game includes a 12 page rulebook, a 17"x22" board, and 60 fully die-cut counters. Three possible levels of play and simplified movement system highlight the design. Cost is $7.50 from FanTac Games, 464 Lenox Ave., S. Orange, N.J. 07079.

GameStack, magnetic game counters, is now being distributed by Flying Buffalo. It is a 1/2" wide strip with magnet on one side and stick'um on the other. Peel off the adhesive backing, lay the counters from your wargame on the strip, cut them apart with a knife, and you have magnetized game counters. Counters will then adhere to maps placed over a metal surface. A 20' strip is enough for approximately 400 counters. For details about this product, write Flying Buffalo, Inc.; P.O. Box 1467; Scottsdale, AZ. 85252

SPACE PATROL by Michael Scott Kurtick and Rocky Russo has just been published by Lou Zocchi/Gamescience. It includes an 8 1/2x 11 rules book of 25 pages. Most of the systems of this game are designed to follow reality. Elements from many science fiction novels and stories have been incorporated into the game. It is available from Gamescience Inc., 7604 Newton Drive, Biloxi, Miss. 39532, for $5 plus 75¢ for postage.

DUNGEONS AND DRAGONS has been revised. TSR Hobbies has released the long-awaited revised edition of D&D incorporating the three basic books of the original into one 48-page rules booklet. The game comes boxed (with a full-color cover), rules booklet, a set of polyhedra dice, a set of basic dungeon geomorphs, and monster and treasure cards (assorted for 1-3 levels). This revised D&D is a vast improvement in organization over the original. The editor, Eric Holmes, should get a tip of the hat from loyal D&D fans everywhere. Be sure to get this edition if you buy from anyone; it will save confusion, especially for the novice gamer. D&D is available from TSR Hobbies; Box 756; Lake Geneva, WI 53147.

DESIGNER'S NOTEBOOK

Using Hymenopterans from CHITIN in your fantasy role games is a natural. They are persistent, don't mind heavy losses and will cart your hurt friends off to the vats. You have to be careful even though humans outmatch the average Hymenopteran. A small group of 4-8 Hymenopterans can be deadly for adventurers who get careless.

COMMAND CONTROL for CHITIN fighters is provided by the intelligent Basics. They direct combat psionically in an area 500 meters in all directions. (Each CHITIN map hex represents 200 meters.) Basics will protect their command function by avoiding combat. Their psionic control can extend around corners but several tunnel bends block it.

COMBAT TACTICS: Hymenopterans are single minded- they always go straight to a food source. To a Basic your adventurers are a mobile food source that fights back. They stay together, fighting as a well drilled unit. They will force an opponent back to allow workers to pick up bodies or get food. The workers stay close to the fighting and grab food immediately. Enemies that retreat are pursued.

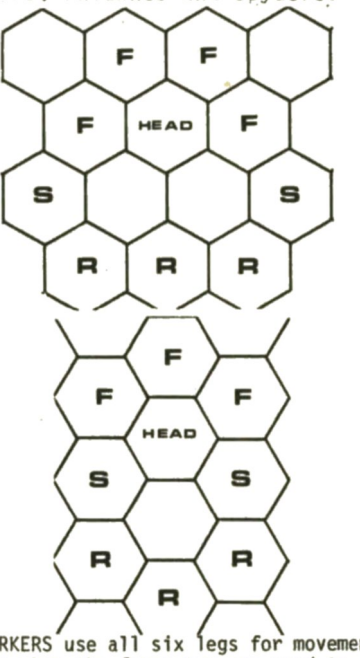
Basics will direct a controlled retreat in two instances. If they think they will lose more bodies than they can gain they will break off fighting and retreat. They will also start a retreat when all surviving workers have a full load. They will not try to recover their own bodies in retreat.

MISSILE WEAPONS are not used nor well understood by Hymenopterans. In a campaign game several combats should pass before Basics learn to avoid missiles.

DARKNESS affects Hymenopterans minimally. They use psionics to get around their own nearly dark Hives. Play Hymenopterans at a minus 2 dexterity in dark or shadows.

MAGIC is unsued by Hymenopterans, but they are sensitive to some of magic's effects. Basics or other Intelligent class Hymenopterans, can disbelieve one Image or Illusion per combat turn without penalty to any other action. Basics execute the disbeleiving against I.Q. as per WIZARD rules.

FACING for MULTI-HEX figures is shown below. A figure has a front, rear, and side according to the position of the head. All movement and combat rules for multi-hex figures in MELEE and WIZARD apply to the 3 hex Gantuas and two hex Workers, Phlanxes and Spyders.



WORKERS use all six legs for movement except when the front two are used to carry food. A Worker will try to get two body weights of food before heading back to the Hive. They will try to pick up a third body weight of food if it means no more than a one hex deviation from their withdrawal path. A Worker will fight only if engaged in hand-to-hand combat. Otherwise it only tries to gather food.

DATA: Height 2m., Weight 200kgm.; Moves 8 hexes per turn. Scales take one hit per turn. It does one die minus one damage in hand-to-hand combat. The Worker is a two hex figure. Strength 20, Dexterity 8, I.Q. 6.

LOW RENDERS are a Render Class of fighter that uses claws and teeth as weapons. It is good in rough terrain.

DATA: Height 1.3m., Weight 100kgm; Moves 10 hexes per turn. Scales take one hit per turn. It does one die plus one damage in normal or hand-to-hand combat. It is a one hex figure. Strength 10, Dexterity 11, I.Q. 6.

PHLANXES are a Thruster Class fighter developed to counter the Gantuas. Their weapon is two large, projecting body spikes. They can deliver devastating charge attacks or fight close in.

DATA: Height 2m., Weight 150kgm; Moves 8 hexes normally and 12 hexes in Charge Attack. Scales take two hits per turn.

It does two dice damage in regular combat, double damage in Charge Attack, and one die damage in disrupted or hand-to-hand combat. The Phlanx is a two hex figure. Strength 16, Dexterity 10, I.Q. 6.

TERMAGANTS are Hacker class fighters. Hackers are the only class of fighters bred to use weapons. Termagants have the handle of a large sword embedded into one claw. The sword shaft fits into a socket on the handle. Drop Weapon spells do not cause Termagants to drop their sword.

DATA: Height 1.6m., Weight 80kgm., Moves 12 hexes per turn. Scales take zero hits per turn. It does one die plus one damage in regular combat and one die minus two in hand-to-hand combat. It is a one hex figure. Strength 10, Dexterity 11, I.Q. 6.

PLUNGES are intelligent, flying Hackers that do not need Command Control from Basics. It fights under the same flying rules that appear in MELEE and WIZARD.

DATA: Height 1.3m., Weight 60kgm., Moves 6 hexes on ground, 14 hexes flying in an enclosed area, and 20 hexes flying in an open area. (Any room or tunnel is considered to be enclosed.) It does one die damage in regular or hand-to-hand combat and double damage diving on an opponent. Body scales take zero hits. It is a one hex figure. Strength 8, Dexterity 12, I.Q. 8.

MYRMIDONS were developed years after the combat types in CHITIN. They are classed as intelligent and don't need control from Basics. They can handle any held club or sword type weapon by griping it directly. Its usual weapon is a sword.

DATA: Height 1.7m., Weight 120kgm., Moves 10 hexes per turn. Scales take two hits per turn. It does two dice minus one in regular combat and one die minus one damage in hand-to-hand combat. It is a one hex figure. Strength 12, Dexterity 12, I.Q. 8.

BASICS are classed as Intelligent Hymenopterans with command ability. They can direct as many as fifty non-intelligent types each. They will avoid combat to preserve their command function. All Basics should start combat mounted on a Spyder mount. They can mount any other multi-hex Hymenopteran figure but that figure will not then be able to fight.

DATA Height 1.3m., Weight 40kgm., Moves 8 hexes per turn dismounted and at the mounts movement less two hexes per turn when mounted. Scales take no hits. It does one die minus two damage in regular or hand-to-hand combat. Does not fight when mounted. It is a one hex figure. Strength 6, Dexterity 10, I.Q. 12.

SPYDER mounts are specially bred as mounts for Basics. They are the only type trained to fight while mounted.

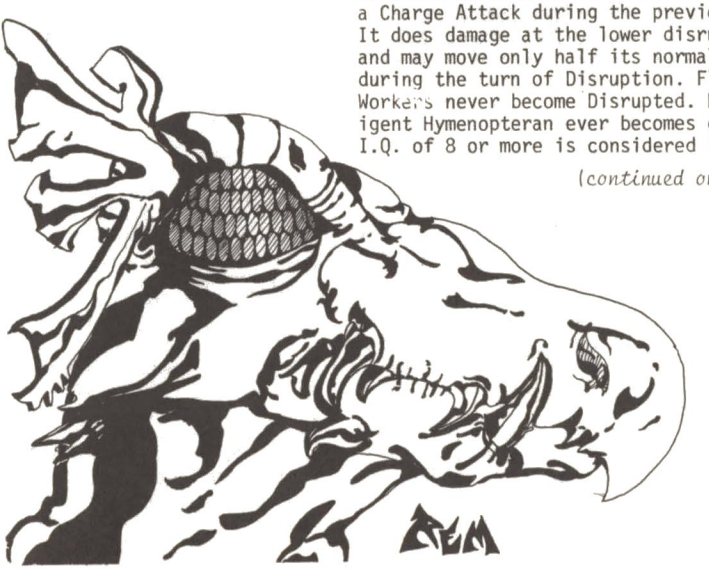
DATA: Height 1.3m., Weight 100kgm., Moves 12 hexes per turn unmounted and 10 hexes per turn mounted. Scales take one hit damage per turn. Combat value is zero when unmounted. With Basic rider it does one die damage per hit.

GANTUAS are large, heavy fighters that kill by smashing with claws and legs. They were developed as an offensive force to break up groups of smaller warriors.

DATA: Height 2m., Weight 300kgm., Moves 8 hexes normally and 10 hexes in charge Attack. Scales take three hits per turn. It does three dice minus one damage in regular or hand-to-hand combat and one die plus one damage when disrupted. The Gantua is a three hex figure. Strength 24, Dexterity 10, I.Q. 6.

DISRUPTION: A non-intelligent Hymenopteran is considered Disrupted if there is no Basic to command it or if it executed a Charge Attack during the previous turn. It does damage at the lower disrupted rate and may move only half its normal move during the turn of Disruption. Flyers and Workers never become Disrupted. No intelligent Hymenopteran ever becomes disrupted. I.Q. of 8 or more is considered to be

(continued on page 37)



THE YEAR IN BOOKS: 1977

I expect most science fiction fans to greet 1978 with broad smiles across their faces. After all, 1977 is the year of science fiction, or so it appears appears. I can state my case with two words, STAR WARS. SW has gone beyond art, and become Modern Myth. By the end of 1978, most literate people on the planet will have encountered this phenomenon in some way, shape or form. Publishers and producers, eager to capitalize on any fad or trend, will be offering BIG money to anyone they feel can duplicate the success of SW. Many so-called creative people will be sprouting ideas in dozens. New movies, TV shows, and other assorted waves of science fiction, fantasy, and boderline cases of both are about to invade your very way of life. Some will be crackpot and commercial. Some may be intelligent and thought provoking. The only thing certain is the flood is coming!

Ironically, 1977 was also a very, very good year for the science fiction novel. Many of science fiction's major authors produced major works. This is a blessing. Many excellent books were also reprinted, allowing fans to read some of those long out-of-print classics. The impact of good ol' SW will be felt soon in the written word area. Look for some super good things from writers who you once thought were hacks. The BIG Bucks will give the average SF writer more time, and that should mean better things. Let's hope so.

The following list is a bunching of several people's bests. They are in no particular order.

THE MALACIA TAPESTRY -Brian Aldiss

GATEWAY -Fred Pohl

THE DOOMFARERS OF CORAMONDE -Brian Daley

A SCANNER DARKLY -Philip K. Dick

MICHAELMAS -Algis Budrys

THE DOSADI EXPERIMENT -Frank Herbert

LUCIFER'S HAMMER -Niven & Pournelle

APOCOLYPSES -R.A. Lafferty

IF THE STARS WERE GODS -Benford & Eklund

A LITTLE KNOWLEDGE -Michael Bishop

OUR LADY OF DARKNESS -Fritz Leiber

THE SILMARILLION -J.R.R. Tolkien

THE SWORDS OF SHANNARA -Terry Brooks

IN THE OCEAN OF NIGHT -Gregory Benford

If some of these titles are unknown to you, I suggest a trip by the library or your local SF hangout. They are all very good, and I recommend them highly.

My the new year bring you good fortune.

...C. Ben Ostrander

If you've wondered what a lagrange point is, why there are 5 of them, or why anyone wants factories 200,000 miles from the nearest McDonald's, get a copy of Space Settlements: A Design Study (NASA SP-413), $3.95. from the Superintendent of Documents, Washington, D.C.

In 180 pages, this 1975 study provides all the initial assumptions, qualitative, pro and con, behind 1980's major controversy involving a 22-year outlay of 192 billion 1975 dollars. (The idea of five successive Presidential administrations agreeing about anything makes the success of the L-5 venture dubious on its face.)

Hazards, difficulties, unknowns, and alternate possibilities in terms of present-day capacity are spelled out fairly, not glossed over as in some recent syndicated feature articles. Particularly these include long-term human response to coriolis force, significant if intermittent weightlessness and radiation, and the feasibility of profitable energy transmission to Earth. There are more than 100 tables and charts, and dozens of diverse design topics are covered in technical appendices; the book might make, in fact, a good life systems guide for an ecology class. In sum, it represents complete general design justification for a torus-shaped L-5 colony. As such, it is superior in most ways to O'Neill's recent hardcover popularization; O'Neill himself served as technical advisor. Even the paper is better, thanks to the government subsidy. Pick up a copy. Get back some of your tax dollars in the exchange.

...Lynn Willis

THE MASTERS' GAME

by
Bill Williams

Grunt entered the woods. He peered into the brush on each side of the path, ignoring the branches over head. Bob Datatrans, perching above, waited to get a good hit on the barbarian before taking any more himself. At last, Grunt passed directly beneath. Bob's grip tightened on his broadsword as he lept with a terrifying yell. The sword sliced deep into Grunt's right shoulder. Bob jumped back; ready. Grunt shifted his spiked club to his good hand, bellowing rage and pain. Bob prepared to defend, but Grunt fell silent, then dropped his club and ran away, whining. Bob whirled around and saw the ogre. The massive creature charged forward, brandishing a battleaxe over his head. Bob ducked under the first swing, landing a fair hit on the ogre's left thigh. The next blow of the great ax was too quick for him. It cleanly severed his left arm at the elbow. Bob stood for a moment, looking first at his bleeding stump and then at the grinning ogre. The ogre began laughing out loud when his victim's eyes rolled back. Bob fell backwards to the ground. The ogre ripped off part of Bob's shirt and cleaned his ax. He didn't notice Bob readying his dagger. The ogre drew his own dagger and prepared to finish the job. He straddled the supine form and raised Bob's head by the hair. In one swift motion, Bob plunged his dagger deep into the ogre's neck and brought both his knees hard into the groin. The ogre slumped heavily across Bob's face and midsection. He tried to move the ogre, but soon saw it was impossible. "I guess I'll either bleed to death or suffocate," he thought.

"The ogre may not be dead," said a voice. "He may revive and finish you. We' ll see."

"Them's the breaks," said Bob. Everything began getting dim, even the pain.

A blackness of all senses enveloped Bob Datatrans. He was aware of his own existence and nothing else. Although it lasted only a few seconds, it could just as easily have gone on indefinitely. Bob had absolutely no way of knowing. The first sense to return was hearing. Bob heard the sound of the sea as heard in a shell. His own blood flow was the only audio stimulus available. Then a voice; the same one he had heard before when dying.

"That wasn't a bad match, considering your little surprise. The ogre did die so you get fifty points." The voice droned on. Bob knew better than to try to answer just yet. "It would have been more if you had survived. Letting Grunt get away hurt a bit too, of course. But all in all, not a bad match."

Bob listened and kept still. The thick fluid which had insulated his body during the adventure had not completely drained away. Breathing tubes protruded from his nostrils, and tape covered his mouth. A tight-fitting skull cap covered the upper part of his head. The cap contained millions of tiny filaments.

Almost without noticing, Bob could feel again. Deft rubbery waldoes extracted various plugs and blockages from his bodies orifices. Cool fingers peeled the cap from his head, and he heard the pod lid swing up. The dim cubicle lights brightened slowly, allowing his eyes to adjust. The voice which had been in his head, now came from a small computer terminal mounted in the foot of the oblong pod.

"How do you feel Bob?" it asked. "Everything all right?"

"Yes, Merlin," he said, "thank you." A spray of warm water sluiced the syrupy residue from his body.

"If you do well next time, you should have enough points to move up to missile weapons," said Merlin. "How would you like to go after an orge with a crossbow? It would be hard to kill one with it, but you could sure slow him down a bit, and from a safe distance."

Bob sat up in the pod and stretched. "That would be nice," he said.

"Well, you don't sound very excited about it," said Merlin with just the right amount of concern mixed with slight disappointment. Bob got out of the pod and

began dressing, his back to the scanner. "Perhaps you would like a pure excapist scenario next time," sid Merlin, "A trip to the Village of Brothels? No points there of course, but..." The voice trailed off into a quiet chuckle.

"Yeah," said Bob, "maybe." He opened the cubicle door and started out. "Next time," he said over his shoulder. The lights went out when the door closed. The computer screen glowed for a few seconds, and then it too faded.

Bob walked down the door-lined, SenSub corridor to the outer gallery of the Golden Balls arcade. The only part of this area that interested him was the pub. Weaving through the antique pinball and TV games which had fascinated him as a boy, he made his way to the crowded bar. While waiting for his Blue Vodka martini, Bob looked over the game floor. The archaic forms seemed as much in demand as the most elaborate holo-feedback devices. Bob had outgrown these simple games years before. He devoted his play time to the sophisticated Sen Sub programs; most often Quest. He occasionally tried one of of the Hedonist scenarious, such as the one Merlin had suggested, but he preferred the strife situations offered in the Quest program.

Pleasure was easy enough to come by in the real world. The shaft cities were devoted to it, along with comfort and security. Most jobs in these cities were

less demanding than the ancient games in the Golden Balls' outer gallery. Bob, for instance, worked four hours a day, three days a week, sitting at a desk taking cards from a feeder bin, typing the information from them into the main computer, and dropping the cards into a recycling slot at the other end of the desk. The computer could have done this job more efficiently, but the shaft planners had realized that there would always be a certain number of people who wouldn't be happy with an easy, simple life. These people would have to feel they were fulfilling a necessary function in order to be happy. When all the truly vital jobs had been filled from this group, there were people left over. Since the shaft concept was intended to include all residents, certain long cuts had been designed into the system to make work.

Between his job and gaming, Bob had always been satisfied. His work consumed enough time to make him appreciate leisure. Gaming had been keeping up with growing skill through the years. When he tired of one game, there was always a more advanced on to move up to. Now, he had reached the top of the stack and knew it. There were no more sophisticated games than SenSub. It was the ultimate simulator. When Bob lay down in a sub pod, all senses are blocked out. The games computer substitutes whatever inputs and updates the particular scenario being played called for. The same system was used in Hedonist programs for pleasure and wish fulfillment. Through SenSub, all things were possible. Short fat people could see themselves as they would like to be; shy retiring types could become assertive and dynamic; religious maniacs could talk with God. Bob Datatrans could kill and be killed in a myriad of settings. And best of all, there were no internal discrepancies to let one know that it wasn't really happening; that the body was lying in a fluid filled coffin, while the mind romped with a computer. For all practical purposes, SenSub experiences were real experiences.

Bob had been subbing for over five years. He had tried most of the scenarios available in the Quest program before settling into the Medieval Combat series. He remembered his adventures in the Quest world as if they had been real. Yet, the intervals between trips had grown longer. Bob was not sure why. On his way out, Bob stopped by an old pinball machine and started to punch his ID card into the reworked coin slot, but hesitated. He finally put the card back in his pocket and walked into the crowded corridor.

Three weeks later, Bob entered the Golden Balls and went straight to the Sen Sub corridor. He selected an empty cubicle, slid his ID into the receptacle, and waited for the door to open. When it did, the lights came on and Bob entered. The pod lid swung up. As Bob began undressing, the computer screen came to life. A speeding cursor covered the screen with Bob's ID information and his credit balance. Merlin spoke. "Hello Bob," he said. "It's been quide a while, hasn't it?"

"Yeah," said Bob, "I've been pretty busy."

"Yes, of course," said Merlin. "What will be your pleasure today? Medieval Combat, or something different?" The screen erased and a roll of SenSub programs climbed slowly upward.

"I don't know," said Bob, "maybe a trip to the brothels, like you said before."

"Bob, are you getting tired of gaming?"

Bob turned to face the scanner. "What do you mean?" he asked.

"It's just the infrequency of your visits lately. And when you do come in, you aren't going one hundred percent. For instance, your last foray-"

"Yeah, yeah. I remember," said Bob turning away. "I guess I've been approaching it differently these days." He sat down on the edge of the pod. "I'm not tired of it; 'used to it' might be a better phrase." Bob stood up once more facing the scanner. He stroked the edge of the pod absently. "I could try some different scenarios--". He looked around the cubicle. "Hell! I don't know if I want to play today or not. I don't even know what the problem is."

"Whether or not you play is, of course, up to you. I was about to suggest a new scenario we are offering to more advance players in the Quest program. It is called the Masters' Game." Merlin paused, and when Bob said nothing, continued. "It is only fair to warn you that the Masters' involves gambling. Have you ever gambled before Bob?"

"Of course not," said Bob. "Gambling isn't a valid form of gaming. Not in this now moneyless, society. No stakes. Even the credit system is mostly illusion as I understand it. No one really has to do without anything for lack of creds."

"When such a society exists, everything you've said will no doubt be true," said Merlin. But that society does not exist; not even here in the shafts. You, and people like you, are the proof. You have an unfulfilled desire which no amount of creds can satisfy. Only challenge and struggle can do that. No situations of that sort are to be found in this or any other shaft city. Most citizens would have it no other way. You are one of the few who need and like a struggle. Fortunately, for the more docile denizens of the shaft, most of you "wild ones" are content to use SenSub to quench the thirst for adventure. But more and more of you have been tiring of the games lately, and since the shaft is supposed to be a happy home for you, a more advanced scenario has been

added to the Quest program; the Masters'. Few gamers are offered a chance to participate; not all of those accept. You are a prime candidate, Bob. What do you say? Would you like to hear more?"

"Sure," said Bob, sitting down. "I would like to know how you can get more advanced than SenSub."

"It is quite simple really," said Merlin. "Do you remember being told the statistics on accidental death in SenSub during your orientation period?"

"Yes," said Bob. "It is pretty insignificant isn't it? About the same as falling down in an uncrowded corridor, as if such a thing existed, or something like that."

"That's right, Bob. It's what you were told anyway. You are actually safer in a SenSub pod than you are walking down a corridor because most of those deaths are not life support malfunctions, but the results of Masters' Games."

"Wait a minute," said Bob. He thought for a moment and leaned closer to the screen. "Are you saying that if I screw up in a Masters' scenario and oh, let's say, let an ogre chop off my arm and fall on me, you would just cut off my air or send a lethal charge to my brain or something like that?"

"Exactly," said Merlin. "Well? Interested?"

"I don't know. I don't know," said Bob. He got up, went over to his coveralls, and fished a pack of cigarettes from one of the pockets. "I haven't been doing too well lately, as you say." He lit up and sat back down. An ash tray appeared from the wall. "Maybe I should play the standard format a few more times first, sort of practice"

"Certainly Bob," said Merlin. "In fact, it is standard procedure. We have no desire to kill our Masters off. There is one more thing. It will be necessary to change scenarios. Your favorite, the Medieval combat, is not available in the Masters' program."

That's all right," said Bob. "I can think of better ways to go than bleeding to death, or being crushed by a dead stinking ogre."

Merlin chuckled and said, "We hadn't considered it in exactly that light. The Masters' Game is limited to the Space Combat series for reasons of fairness. Space combat is easily quantifiable. We have much more accurate data on the effects of torpedos and explosive decompression, than we do on sword wounds and dragon's fire. With the player risking so much, it is necessary to go to great lengths to insure him exactly the same odds he would have in real life. Space combat fits those parameters well. You will face the same risk in a Masters' engagement as you would in the real thing, no more, no less."

"I can't ask for any more than that," said Bob. "I can practice up though. It's been a while since I flew a fighter."

"Yes, but you were very good. I would advise you to try a troop lander however, at least for your first Masters'."

"I don't know. The troop landers were all right to get the feel of space flight, but the fighters were a lot more exciting."

"But those missions were simulations Bob. For all intents and purposes, the Masters' Game is real. Perhaps you enjoyed the fighter missions more, but you didn't survive many of them. You didn't survive all of your landing attempts either. Remember?"

"Yeah, I suppose you're right," said Bob. "I guess a SenSub scenario of driving on a twentieth century freeway would be exciting if you knew you could really die in a crash. But what does it matter to you anyway?"

"It doesn't Bob. If you really want to take a fighter, you can. It's just that the Masters' wasn't conceived as a form of suicide. If you wish to use it as one, it is totally up to you."

"NO...No, I see your point. The troop lander will be fine." Bob snuffed his smoke and got into the pod. "Remember Merlin," he said, "this time is just practice."

"Right Bob. We call it training."

The pod lid closed. Merlin's waldoes did their work and the blackness descended. Bob woke up and looked around the cockpit. It always amazed him that such a large ship could be controlled by one man at this tiny console. He understood the logic behind the design. Ship's computer systems did most of the work. Any more than one man at the controls would slow things down. This way, man and computer worked as a team. If Bob had to communicate with a co-pilot as well, it would never work.

Bob's landing vehicle was still locked in one of the drop bays of a huge mother ship. The mother ship would release the landers in the neighborhood of a hostile planet without going into orbit itself. Bob would then insert his ship into a polar orbit, wait for intelligence reports from small, fast scout ships, then choose a landing site to set his load of infantry and armor down.

Bob could tell Merlin had been right about choosing the lander over the fighter. He felt more nervous now, before anything was happening, than he usually did when engaged with an enemy. For the first time in his gaming career, Bob knew what he was doing was important.

The mission went well, at first. When all checks had been completed, and he had received the go ahead from mission control, Bob activated the drop sequence. He knew when the bay doors opened beneath him without looking at the tell tale. A few seconds later, the dun walls

of the drop bay shot up and out of sight. Bob successfully entered orbit, and when he was given landing coordinates, he took her down. The landing was uneventful except for some AA fire. No interceptors appeared. Bob blasted off and headed for the pick up point as soon as his cargo of men and machines had reached a safe distance from the ship.

Things got sticky at the rendezvous point. It was thick with enemy. Bob radioed the commander of his infantry squad to proceed to the alternate pick up point. Bob arrived minutes later and saw it was clean,so he landed and waited. He didn't have to wait long. Enemy interceptors flew over at treetop level. Bob hesitated, trying to decide whether to take off or what. Indecision gave the enemy time to circle back. Bob had decided to take his chances in the air, but it was too late. They were on top of him before he could lift. He fought as well as he could from the ground, but it was over in seconds.

Merlin didn't speak until the pod had opened and Bob sat up. "Well," he said, "how was it?"

"Whew!" said Bob. "That was something. It may be a while before I want to try a Masters' for real."

"That's fine," said Merlin. "Many Masters' candidates never stop "training". Just knowing they could risk their lives makes it unnecessary for them to actually do so."

"I can see that," said Bob. "I bet my metabolism readouts were higher during the easy parts of that mission than they have been in months."

"Years, Bob. Years."

Bob finished dressing in silence. "I'll be back soon this time Merlin," he said. "Real soon."

"Good."

Bob left the Golden Balls feeling good; something he hadn't felt in a very long time.

Two months later, Bob had flown fifty missions. He had landed on fifty different planets in all types of weather conditions and combat situations. He had died only six times. After each of those times, he'd sworn never to play a Masters' for keeps. But his last twenty missions had been successful, and Bob felt good.

"I think I'm as ready as I'll ever be," he said. "What do you think, Merlin?"

"I don't think more practice will substantially increase your odds of survival. Yes, today is as good as any."

"Good," said Bob as he began undressing.

"Good luck," said Merlin as Bob lay back in the pod. "I mean that."

"Thanks," said Bob as the process began. The blackness came and went. Bob was aware of the rubbery fingers preparing him to leave the pod. "Oh Hell," he thought, "something must have gone wrong. Why now of all times? I don't know if I have the nerve to say I'm ready again."

At last the pod lid opened. Bob knew immediately he was no longer in a SenSub cubicle at the Golden Balls.

"Don't worry, Bob," said Merlin's voice. "Go ahead and get up."

"What's the deal here-" began Bob, but Merlin interrupted.

"Don't ask questions," he said, "this is a recording. Just get out of the pod, put on your flight suit, and sit down in the pilot's seat."

Bob sat up. At the foot of the pod was a cockpit similar to the one in his troop lander. A blue and white marbled planet was visible through the port. Bob had a little trouble getting into the suit he found folded neatly beside the pod. He had never had to do that before. In all of his training scenarios, he had regained consciousness in the seat. When he finally did get the suit on and strapped himself into the pilot's seat, Merlin's voice sounded again, this time from a small speaker in the console.

"All right Bob, this is still a recording so just listen. There will be plenty of time for all of your questions when you have completed the mission. As you no doubt realize, this is not a SenSub experience. It is real. You are awake and sitting at the controls of a colony ship. We, that is the shaft councils, have been sending these ships out for the past hundred years on a more or less regular basis. This particular vessel has three thousand colonists on board, all Masters' players, and all but you still in their pods awaiting revival. You have been brought out because the ships automatics have detected a planet that should be habitable by humans. Out of this batch of masters, you are the most successful at landing space ships. First, you must put the ship into a stable polar orbit. The automatic sensors will then give the planet a much closer look, and if they still like it, choose a landing site. If there is something wrong with the planet; if it is already as crowded as Earth for instance, you will have to go back into the pod. The ship will leave this system and resume its search for a suitable planet. This is highly unlikely. The automatics on this vessel are very sophisticated, and I imagine getting back into that pod would be harder on you than any challenges you are likely to find on your new home.

"Once you have landed, all ship's systems will be brought up to full power, including me. We can have a real talk then. I know you must have a lot of questions, but there isn't enough time to fill you in completely. The main area in which you, and all the citizens of Earth, have been deceived is in the viability of the shaft system. The balance has always been delicate, The Masters' program was designed to select people who were not par-

ticularly happy in the shafts, and give them a chance to begin a new life on a new world. No doubt many of the ships sent out plunged through space without finding a livable planet until the life support systems deteriorated and the would be colonists perished. But, they all entered their pods believing they were to play a Masters' Game with death being one of the possible outcomes. In this way, we have been able to maintain the balance and we should be able to do so in the future.

"So, it is up to you Bob. You need to begin setting up your orbital insertion. This landing should be a piece of cake compared to your training mission, but your life and the lives of all your passengers are at stake. Good luck!"

Bob sat for a moment looking at the planet before studying the board before him. All the flight controls were identical to the ones in his troop ship; only the armament sections were missing. Slowly, his hands reached out and he began setting his approach. "It is a beautiful world," he thought. "I wonder what we will name her."

When Bob was fully unconscious, two men entered the cubicle carrying a stretcher between them. The pod lid opened, and the men lifted Bob's heavily drugged body onto the stretcher.

"Remember to use the freight lift," said Merlin. "We wouldn't want to upset the citizens would we?"

"The men chuckled and went out into the corridor carrying their burden away from the door that lead to the outer gallery. They took Bob Datatrans all the way down to the base of the shaft, to a room literally full of SenSub pods. The oblong boxes were ranked one on top of another all around the walls. Those who knew about this room and they were very few, called it the Morgue even thought all of its residents were very much alive.

The two men pulled an empty pod out of the rack and placed Bob in it. When they slid it back into place, a green light winked on at the exposed end. They left the room and all the lights went off, except the little green ones.

"Well Bob," said Merlin, knowing full well Bob couldn't hear him, "here you go. The shaft will be a safer place with you down here, and you require less space and nutrient, but it's still sort of sad. Maybe someday, we can really build ships like the one you are about to land and then people like you can really go out there. I hope so. Oh well, it's not so bad I guess. You will never know the difference anyway. You will land you ship and have a wonderful adventurous life on your new world. Your body will last around a year in the pod; of course, you might mess around and get yourself killed in true Masters' form. There are a lot of strange beasts on that planet. I ought to know; I created it. I am it actually. But listen to me. A fine computer talking to a living corpse. Babbling like an old man. Well, maybe I'm not such a fine computer, but you are certainly more alive than most of the citizens of the city above. On, the Hell with it!"

Bob knew immediately he was no longer in a SenSub cubicle at the Golden Balls.

"Don't worry, Bob," said Merlin...

(continued from page 30)

the intelligence threshhold.

MOUNTED COMBAT is conducted as per the MELEE and WIZARD rules with these added rules. The rider of a two hex figure is considered to be astride the middle of the two hexes. A standing figure can strike at the rider from any hex adjacent to the mount. The rider should face in the same direction as the mount. The figure striking at a rider does so with a minus 2 dexterity adjustment

Dismounting is achieved by having the mount move no more than one hex during movement and placing the rider in a front or side hex of the mount. The dismounting rider can not fight that turn.

Mounting is achieved by having the mount and rider move no more than one hex during movement. The rider is then placed on the center of the mount if he had been in a hex adjacent to the mount at the end of movement. A rider must have been standing at the start of movement to mount.

CHARGE ATTACKS can be made by both the Phlanx and Gantua. During movement a player designates them as Charging. They can use the extra indicated movement bonus if desired. They do double the normal damage if they hit a target while Charging. They are disrupted for the turn following the Charge.

If a rider takes sufficient hits to be rendered unconscious or to have been knocked down if standing he falls off his mount into any unoccupied hex adjacent to the mount. He lies prone until he can stand. If a rider falls off onto a standing figure the standing figure gets a three die roll against dexterity to also avoid falling down.

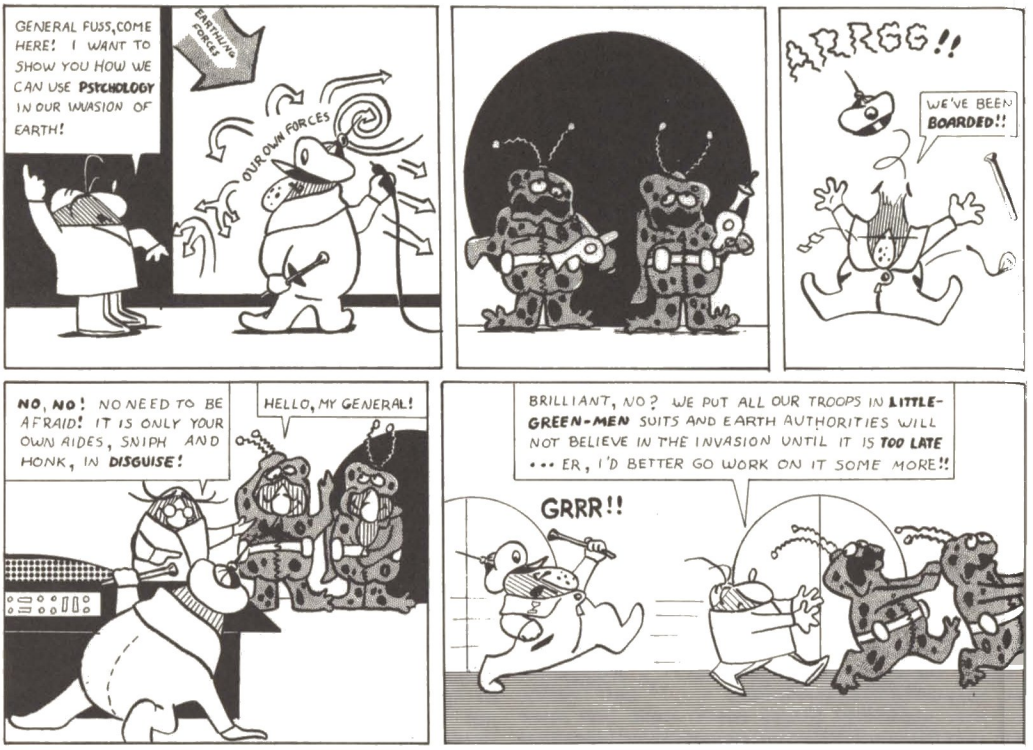
If a mount takes sufficient hits to become unconscious or be knocked down the rider is thrown to any unoccupied hex adjacent to the mount. The rider makes a three die roll against dexterity to land standing instead of prone.

A Basic riding a Gantua is considered to be in the foward hex of the Gantua's three hexes.

The rules for mounted figures should be regarded as experimental. Mounted figure rules are in testing and there will be a mounted combat Microgame with pole weapon rules expanded. We invite comments and suggestion on mounted rules for MELEE combats.

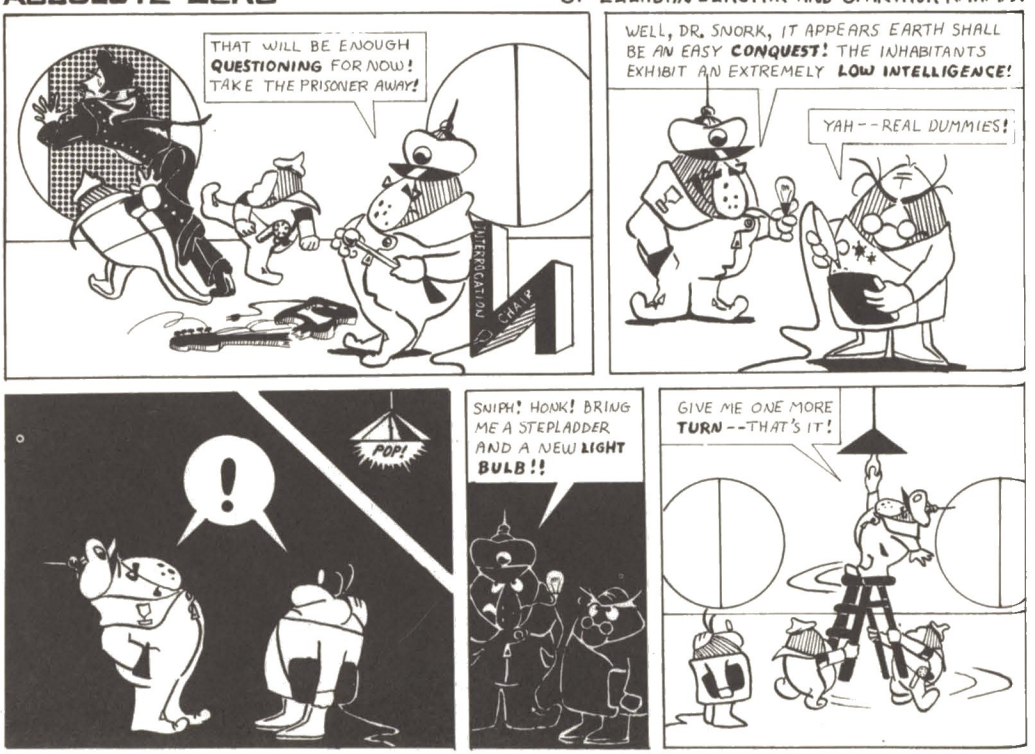
ABSOLUTE ZERO

BY ELLADAN ELROHIR AND G. ARTHUR RAHMAN


GENERAL FUSS, COME HERE! I WANT TO SHOW YOU HOW WE CAN USE PSYCHOLOGY IN OUR INVASION OF EARTH!
EARTHLING FORCES
OUR OWN FORCES
ARRGG!!
WE'VE BEEN BOARDED!!
NO, NO! NO NEED TO BE AFRAID! IT IS ONLY YOUR OWN AIDES, SNIPH AND HONK, IN DISGUISE!
HELLO, MY GENERAL!
BRILLIANT, NO? WE PUT ALL OUR TROOPS IN LITTLE-GREEN-MEN SUITS AND EARTH AUTHORITIES WILL NOT BELIEVE IN THE INVASION UNTIL IT IS TOO LATE ... ER, I'D BETTER GO WORK ON IT SOME MORE!!
GRRR!!

ABSOLUTE ZERO

BY ELLADAN ELROHIR AND G. ARTHUR RAHMAN


THAT WILL BE ENOUGH QUESTIONING FOR NOW! TAKE THE PRISONER AWAY!
INTERROGATION CHAIR
WELL, DR. SNORK, IT APPEARS EARTH SHALL BE AN EASY CONQUEST! THE INHABITANTS EXHIBIT AN EXTREMELY LOW INTELLIGENCE!
YAH--REAL DUMMIES!
!
POP!
SNIPH! HONK! BRING ME A STEPLADDER AND A NEW LIGHT BULB!!
GIVE ME ONE MORE TURN--THAT'S IT!

ELRIC

a review

by
Neil Shapiro

He walked among the Young Kingdoms, a living, terrifying memory of a not-quite-dead past. He was the last Emperor of a dying race which had ruled the world, and was the bringer of that race's final scattering. He was a lover, and a destroyer of those he loved. Sworn to Chaos, he was often the servant of Law. In his world, he had no human -- nor inhuman -- peer.

He was Elric of Melnibone, last of the Bright Emperors to sit upon the Ruby Throne. He rode a path of death and horror to the end of the world with Stormbringer, a devil-blade, strapped and ever moaning for souls by his side.

There are those who say Elric is a fictional character. True enough, he appears in a series of six Histories thinly disguised as rousing novels from Michael Moorcock.

I know that Elric lives; for I have met him. Yes, I recollect my own escape from having my precious soul quaffed by his obscenely hungry sword.

I can only thank the Lords of Law that this meeting didn't take place in a dark alley somewhere in the Kingdom of Org or on a remote part of the Purple Isle. Rather, it took place upon the relative safety of a gameboard.

I met Elric over one of the most beautifully designed gameboards I have ever seen. The game in question is aptly titled ELRIC and is published by the Chaosium Publishers (the same stalwart company which had previously presented DRAGON PASS and NOMAD GODS.

In order to describe the game, I hereby take the awkward liberty of assuming that all readers of this review are already familiar with the Chronicles of Elric as released in the six books by Mike Moorcock. If some hapless reader has not read these volumes, now would be as good a time as any to buy them. After all, if you're about to toy with the Bright Emperor, whose crimson eyes have beheld ungodly terrors and whose heart has known equally tearing sorrow, it pays to be cognizant of his High History. To know Elric is to know an entire world of adventure. Such adventure continues in the game ELRIC.

The map, which I briefly allude to above, is an utterly fantastic work of art in all meanings of the phrase. If you are used to manilla sheets of paper, quarter-folded and overprinted with a dull, hexagonal grid -- this is going to change your mind forever as to what a gamemap should look like. Done on glossy paper in shade after shade of vibrant colors, this map should be framed and hung on the wall between games.

Land areas are divided into civilized nations and wilderness areas; all of which dovetails very well with the descriptions from the Moorcock novels. The nations and wilderness areas are further delineated into smaller, asymetrical provinces, while the oceans are likewise divided into seas.

The provinces and seas are the boundaries which control the movement of pieces on the map. The system works better than a hexagonal grid would have (and also provided the genius/artist with a tempting variety of shapes upon which to test his colorful palette).

Each nation contains from one to four personalities along with fleets and armies. Personalities include lovely and doomed Cymoril, and the scourge of Pan Tang, Theleb K'aarna. Almost every character who ever figured prominently into Elric's life is represented.

To speak solely of game mechanics as rules; Each scenario assigns primary personalities to each player. Players then draw cards from a deck which may be used to "muster" other personalities and armies -- though a primary personality must fight his way into the nation which

is to be mustered. Attached personalities and their armies can be kept track of on beautifully drawn "Battalia" sheets. This neat touch eliminated the foolish looking stacks of cardboard which can look like so many Towers of Pisa during a game.

Armies and fleets are "carried" along by personalities. A personality can pick up an army, take it into a new province, leave to move another army, etc., etc. Sea movement is done along basically the same lines.

Combat is a differential system with two modifiers. Each player rolls a die and the result of the roll is added to the total of combat factors in that player's stack. Finally, if magician personalities are present, spells of Law and Chaos may be cast. These spells can often decisively end the combat.

The mechanics are done in a succinct rulebook with few "holes." Still, mechanics alone do not make a truly great game, a game such as ELRIC.

The question is: How are the mechanics applied to the game's underlying concepts? Do the rules accurately portray a sub-creation, a fantasy world which exists under its own inviolable, seemingly "natural" precepts? Often, in a middling-poor game, one cannot tell where poor initial conception leaves off and bad mechanics takes over.

Designing a game around Elric of Melnibone's life was a truly audacious deed. Michael Moorcock has developed a world, a sub-creation, with edges as sharp as shattered crystal, and with character interaction as complex and mythos-involuted as anything in Fantasy literature. To have designed such a game -- and to have failed -- might have been expected.

The success of this game's design is a rare and delicate joy.

An examination of just a few of this tapestry's details can help us discover the meaning behind the complexity of the weave. The game works as a whole because its parts fit together like the jewels in a watch and the game meshes with the emotional feeling of the books like the gears of that selfsame watch.

Moorcock shows us a struggle between the Lords of Chaos and the Lords of Law, a struggle stretching throughout the dimensions of the "multiverse." In this war, his Eternal Champion faces battle after battle and Armageddon can follow Armageddon. Should the Cosmic Balance shift too far towards either Law or Chaos, in either direction, then the world as we envision it must die.

The game, too, is governed by this Cosmic Law. No personality may hold spells which draw on the opposing powers of the warring Lords but for Elric who, being the pivotal point of world-change, partakes of both the realms of Law and Chaos. In life, as in Fantasy which is but a way of seeing life, there are choices to be made. These choices can lock the soul onto one path or another for good or for ill. Such choices may have unforseen results and others may be cooly calculated.

Each time a spell is played, a choice made, the Cosmic Balance does shift a degree or more from its all too stable balance. Should it move too far, then the world must shift with it.

If the Balance falls towards Chaos then once a province is captured by that Power, it must remain in that camp. As it is for Chaos, so it is for Law. Being opposites they must balance even in final futility.

End of the world when the Balance shifts is "end of the world" in the game. Understandably enough, no reinforcements during the Reinforcement Phase unless the imbalance is righted. Worse, the world can then lose its Eternal Champion. Only during times of imbalance can Elric die. Any other time he is reincarnated with a random appearence on the map.

The concept of this random appearing is quite representative of Elric's fate. He spent his stormy life tossed from one adventure into another. Seemingly, it was at the whim of happenstance, but as it turned out, it was always working toward his final destiny.

A personality, any of the characters run by the players, may control Elric. Often enough did Elric wonder why he allied with those he helped. Also, often did he muse on why he had killed many who died screaming in abject misery upon the chuckling blade of Stormbringer, the Black Sword and Drinker of Souls.

Ally with Elric at your peril, though many times will such need arise. Each time you do, whenever he fights at your side with unsheathed blade, then you again must face the thirst of Stormbringer.

ELRIC is more than a game. It is a very accurate, emotional representation of one of Fantasy literature's greatest sagas. It is myth made real and brought to the gameboard. As an examination of one Cycle of Moorcock's Eternal Champion, it is unique. As a game, it has few equals.

ELRIC is available from the Chaosium, P.O. Box 6302, Albany Ca., 94706, for $12.50.

STAR EMPIRES

a review

by
Norman S. Howe

Remember LOVE STORY? It's about two people who love each other, only one of them is terminally ill? STAR EMPIRES is a little bit like that. It begins where STAR PROBE ended: with the exploration of an immense star cluster. Players start the game with control of a civilization which is just beginning interstellar exploration. They colonize and subjugate entire star systems. When players contact one another, violence erupts (if room for expansion is limited), or trade develops.

A conventional game? Not at all! The methods of performing the above actions are set out in immense detail. Eleven government forms are available, from Anarchy to Hive Mind. You can build spaceports, shipyards, starships, armies, fortresses. You can destroy your enemies' worlds, and rebuild them; develop industry; plunder conquered planets; engage in piracy. You can raise the technological levels of entire planets, design horrifying space weapons, and hold titantic space battles. You can even Terraform worlds, and engage in interstellar espionage and sabotage. All this, in a 72 page rule booklet!

Then the image begins to tarnish. The optional sections of the rule book do not interlock correctly with the basic game. Using the Optional Ship Design table, it is impossible to design a vessel identical to the ones listed in the tables on pp. 25-26. No Difficulty Factors are listed for designing any of the 27 Hyperspace Generators. The tactical weapons research table doesn't give enough information to recreate the weapons advancement depicted in the basic game. A minor detail is omitted from the Alternate System Classification Table. (The Star Exploration Table is geared to only one of the system classes, probably the Mammalian viewpoint, and should be converted for other species.) The interplanetary combat system has a game flaw in it: the distance scale is reduced by a factor of 4000 from the System board to the Battle board, but the time scale is only reduced by 5. This is all right if a player is being fair (i.e. a map only 50 hexes across, no matter what), but there are provisions for a gas-giant/moon system 800 tactical hexes across. To work that, an intermediate scale and movement system is needed.

Sigh

But, wait! All is not lost! They recommend a referee, and referees are magical; They can modify game rules to make them playable, and can rule out impossible situations, and can do all sorts of wonderful and nasty things.

This is, apparently, the only solution. I would recommend a referee designate the system exploration for the entire map beforehand (I did it, using a fudge matrix, so it's not quite impossible), including the locations of all special minerals. The referee should also try to clear up the weapon development tables and the production matrices (eg: the tariff for a Class 2 system should be the value from p. 9 multiplied by the Colonization Indicator Modifier on p. 18. You need that much money.) Instead of starting out each player from scratch, why not make them Minor Empires? (all of which have the same size armies and space fleets as the Player does, but no Scout ships) In this way, having designed the entire map, you have about 34 systems to choose from, and if a player drops out, his systems can be turned back into Minor Empires. It should also be possible to extend the game system back to pre-starflight levels (The values listed are for a starfaring race exploiting primitive worlds), so you can accomodate a player who wants to start as an aboriginal wombat.

One final point: I think I've figured out the relationship of the different system classes to one another:

Class 2(from Mammalian viewpoint): Cool, Wet. eg. Earth.
Class 3: Hot, Dry. eg. Arrakis (Dune).
Class 4: Hot, Wet. Heinlein's Venus.
Class 5: Cold, Dry. eg. Heinlein's Mars.

It may be a coincidence, but this game emerges just when Star Wars is gaining popularity. This may account for my reaction to it. So go out and buy this game. Build an empire, use Nova Bombs and Planetbusters. Now, about those specs for the Death Star...

ALL THE WORLDS' MONSTERS

a review

by

Clara Glowe

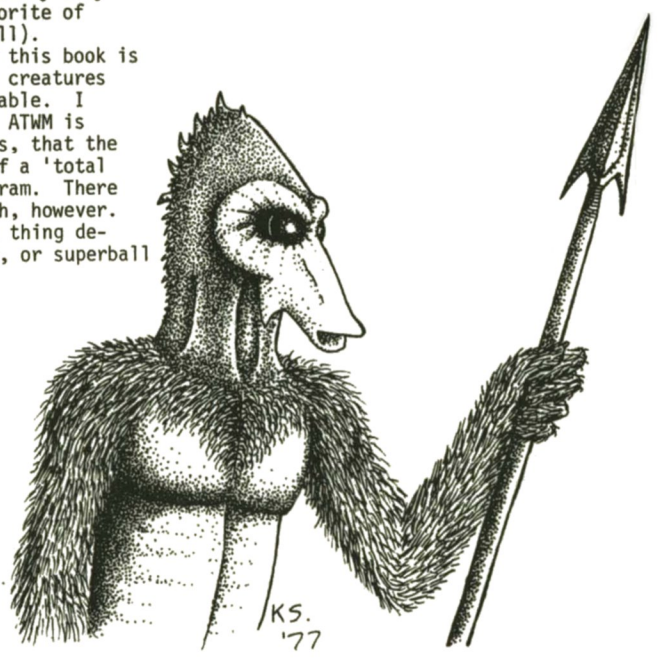
One of the newest entries into the field of D&D amenda is The Chaosiums' ALL THE WORLDS' MONSTERS. It is 8 1/2 x 11, printed length ways on colored pages, 3 hole punched, indexed (alphabetically, type, and level) semi-illustrated, and expandable. This last note shows the intention of the gentle folk of The Chaosium. ATWM will have supplements, and they could go on forever. The principle behind the book dictates it. Every creature listed in this volume is unpublished to date. The editors, Jeff Pimper and Steve Perrin, state up front their desire to not cover old ground. Pursuant to this line of thought, ATWM has listed many monsters, creatures, and thingies from the dungeons of DMs across the country. None have been seen before, and most are original.

Initial response is very high. The cover art is by one of the primer illustraters in the SF&F field, George Barr. His cover creature-cluster of black-on-red is powerful, sustaining the feel of strange for the entire 106 pages. The interior art work is not up to the cover, but I didn't really think it would be. There is just no way they could. (George Barr is a favorite of mine, in case you couldn't tell).

The meat-on-the-bones of this book is what's really important. The creatures are rated from great to laughable. I suppose this was inevitable. ATWM is comprised of so many variables, that the outcome risks the uneveness of a 'total input/total output' type program. There are some diamonds in the rough, however. Witness the 'Bloodbouncer', a thing described as a stringe, tribble, or superball which drinks blood until eight points of damage are done, then splits in two. Or maybe you would prefer the Kill-Kill, a green-furred, ratlike mammal which runs in piranah like packs and is immune to all mental and emotional spells and powers. The list goes on and on. There are so many to choose from, that the confused DM may have to roll some die to figure out which to use.

One last small note, about one of every six monsters is, or should be classified as dumb. They just don't fit in a dungeon, or anywhere else. The interrelationship between the various levels, creatures, goals, and happenings of a dungeon are very important. Crazy and goofy monsters don't have a place. They take too much away from the overall believability of the entire set-up. It is far too hard to create the proper atmosphere with good monsters, much less the ha-ha stuff.

But, I still recommend this book. It will be a valuable aid to novice and expert alike. ALL THE WORLDS MONSTERS is available from The Chaosium, P.O. Box 6302, Albany CA, 94706, for $8.



DOWN STYPHON!

a review

by

Tony Watson

In 1965, noted SF writer H. Beam Piper wrote a novel entitled Lord Kalvan of Otherwhen. It is the story of a Pennsylvania state trooper who is transported to a parallel Earth substantially different from our own. On this strange world, the eastern seaboard to the US is populated by a civilization of a technological and social level on par with that of early 17th century Europe. The Pennsylvania he has just left is part of Hos Harphax, a large kingdom subdivided into five lesser principalities.

At the onset, the young trooper, Calvin Morrison becomes involved in the affairs of one of these countries, Hostigos, which is in rebellion against the religious autocracy of Styphon's House. The priests of Styphon are able to maintain their positions of power since only they have the secret of gun powder and thus can effectively control any long term military action.

In true hero fashion, Calvin (soon redubbed Lord Kalvan) takes charge of the rebellion and introduces improved gun powder, rifled muskets, and trunioned artillery to aid the badly outnumbered army of Hostigos.

Fantasy Games Unlimited's DOWN STYPHON! is an attempt to bring the battles described in the book to the table top in a set of miniature rules.

The game is subtitled "a musket and pike wargame", and this is an important point. Beyond the fact that the action takes place in an alternate world, there is nothing to set it apart as a fantasy game; no dragons, magic rings or staves, no fantastic flying machines. The rules can freely be used for any 17th centuy European style battle.

The rules themselves are good, faithful to their inspiration. They are not very innovative, but they certainly provide all major components thus giving the players some interesting and accurate miniatures battles. While the rules have a lot of 'little' rules to cover specific situations, they are generally clear and understandable. The major tables (movement, fire, and melee) are reprinted on heavy cardstock sheets.

Movement covers the various speeds of infantry and cavalry by unit type. Formations and their effects are discussed, as well as terrain.

The sequence of play section is a straight forward move/fire/melee with cavalry able to halt, to fire and be fired upon, before charging. The game is simultaneous with written orders.

The firing section is the most detailed. Each type of weapon is listed, as well as the die numbers needed to hit at various ranges. Firing is by volley with a group of figures (usually 3 or 6) combining in a single die roll. The die rolls are modified for cover and nationality (Kalvan's boys get plusses). Artillery is handled in a slightly different manner. The firing player must estimate the range to achieve a hit; if one is made, a second die is rolled to determine casualties. This number can be modified for ammo, range and gun size, but it should be readily apparent that guns are very powerful in the battle. To reflect his expertise, Kalvan's guns are faster and more deadly.

The melee system features 'no luck' resolution. The various types of troops are given a point value (often modified for charging, attacked in the flanks, etc.) and the total of the attacker's points is compared to that of the defender to yield the result; either defender or attacker loses 1-5 figures or an exchange of equal numbers. The chart is symetrical, with exchanges common when forces are close, and increasing losses for the weaker force as the gap widens.

The morale rules are also pretty simple. Generally, morale is only checked when the unit is in trouble or about to be attacked. A die roll of 8 or more on one die, modified by a host of conditions, both plus and minus, is required for good morale. Lower numbers result in increasingly more disastrous effects. Special rules govern the instability of mercenaries in battle.

In addition to the rules of mechanics a short introduction and a map of Hos Harphax are included. There is also a listing of the important personages included on either side. Three of the rule book's twenty-two pages are devoted to drawings of the troop types involved, and a suggested painting guide.

For those who do not have the appropriate figures, an appendix is included listing a number of manufacturers of suitable pieces. Apparently, a line of metal troops is being developed especially for the game.

DOWN STYPHON! designed by Mike Gilbert, is available from Fantasy Games Unlimited. P.O. Box 182, Roslyn New York 11576 for $4.00.

ALPHA OMEGA

a review

by
Norman S. Howe

ALPHA OMEGA is Battleline Publications' first science fiction game. It is also one of the strangest realistic simulations I have ever seen. The topic is Tactical Space Combat. The game system resembles Louis Zocchi's ALIEN SPACE in some respects, although played on a hexagonal grid. Other aspects resemble Battleline's own WOODEN SHIPS and IRON MEN. The battles are fought in two dimensions, which disappointed me; I've come to expect better from them, after AIR FORCE. Here in Canada the game cost me $22.58. For that price, I expect a game which uses dice to provide a die. They failed!

In keeping with Battleline's tradition, ALPHA OMEGA is a very pretty game. The 11" x 14" game box is illustrated with a star field photograph from the Hale Observatories. The contents include a rule booklet, 320 die-cut counters, two 41" x 26" geomorphic map sections printed on fairly thick cardboard, split-folded rather than map-folded like SPI's regular maps, a sheet of charts, a pad of record sheets, and a pair of Battleline's odd but serviceable sorting trays.

The hex map is a dark gray, star-flecked field overlaid with a light gray, numbered hex grid. The counters are blue with white or light turquoise illustrations. Now comes the strange: the hexes are 1¼ inches across! This is because the spaceship counters are oversized and oddly shaped. Most are elongated ovals about an inch long, but the fighter groups, representing groups of ships, are boomerang shaped. The Starbases are 1" discs. There are only 40 ships per player; the remaining counters are indicators of various kinds, in the more familiar half-inch squares. I suspect there is an ulterior motive for the odd counters: the spaceship illustrations are photographs of models available from Valiant Miniatures. If I remember correctly, the models are small enough to use on the game map.

The game rationale is extremely complete and coherent. The human race is expanding to the stars, and is attacked by aliens. The game history follows man to Alpha Centauri; to an "empire" of a few dozen planets; through a Hyperspatial Tunnel created by the unknown attackers (called the Droves) to the home system of the Rylsh, also under attack; and finally to the ending of the Drove menace by the closing of their tunnel. The scenarios depict portions of the conflicts involving all three races. Although the battles are spread over many years, none lasted much more than an hour, and no scenario lasts even as long as two minutes of real time: *this game is very tactical.*

Each hex on the map is 186,000 miles across. Each game-turn lasts no more than 6 seconds. Using normal drive, ships may travel 1-5 hexes per turn. They may also use FTL drive, moving at 6, 12, or 18 hexes/turn. No intermediate FTL speeds are possible, and ships travelling at light-speeds cannot perform any other functions.

Each ship has an energy source, providing a certain number of points each turn for operating the space drive, electronic detection and cloaking devices, shields, beams, and special weapons. Movement and combat are plotted and executed simultaneously. Human and Rhylsh ships are subject to momentum, while the Droves use a drive which allows tremendous course changes, but is somewhat erratic in operation. There is an offensive-defensive combat matrix which reduces the randomness of combat results. The advanced rules include Carriers and Fighters, two levels of Technology, and 14 Special Weapons. The scenarios cover straight space battles, assaults on convoys, outposts, starbases, moons, and even an asteroid belt. There are counters for every purpose; they've even proveded 4 counters which aren't described in the Counter list. They resemble expended rocket boosters. A general list of ship types is provided at the end of the rule booklet, along with suggestions for creating scenarios.

ALPHA OMEGA fills an important gap in sf wargaming: the multiple-scenario tactical space battle. TRIPLANETARY and BATTLEFLEET MARS perform this function for interplanetary conflict, but no one else has illustrated how interstellar ships might fight. The designers have decided that technology permits ships to accelerate at millions of standard gravities, and limited FTL travel is possible. However, sensors and beam weapons still operate at the speed of light, so FTL speeds are too great for combat purposes.

ALPHA OMEGA has many possibilities. One is the use of models instead of counters. Another is the adaptation of special weaponry from other games, like Zocchi's ALIEN SPACE or STAR TREK. Yet a third is its use as a tactical module for strategic games such as STELLAR CONQUEST or STAR PROBE. Because ship specifications are variable, the game is compatible with almost any system. This overrides the lack of a third dimension, which might actually hinder playability.

I don't know the U.S. price of ALPHA OMEGA; probably around $12. It is definitely worth the expenditure.

I almost forgot. The title of the game bears no relation to anything else in the game.

SPACE QUEST

a review

by
Robert C. Kirk

SPACE QUEST is a large and confusing game. It says so right there on page 2, section 0100, of the 111 page rule book. Don't let this scare you off, though. A good role playing game has to be large and complex (well, doesn't it?) and will thereby be confusing at first. Once set up and running, this is a quite decent game.

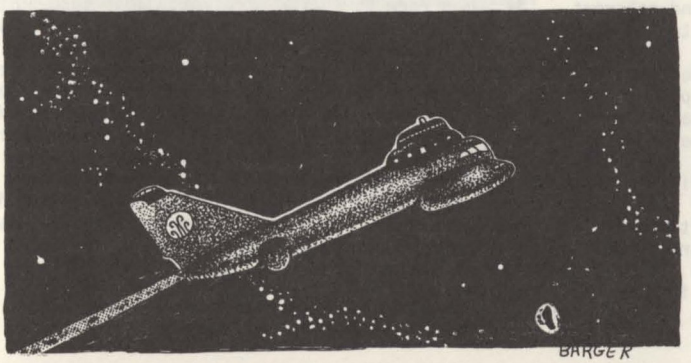
To get the essentials out of the way: SPACE QUEST was designed by Paul Hume and George Nyhen. It is available for $8.00 from TYR Gamemakers LTD., P.O. Box 414, Arlington, Va. 2210. It is a role playing campaign game on an interstellar scale.

Player/characters have the attributes of Physical power, IQ, Co-ordination, Speed, PSI, Empathy, and Vitality. They can be Human, Trilax, or Silicoid, each race having different multipliers for the above attributes, which are rolled on three dice. Caste, rank, and class are determined for each character as well as specific skills and education. These not only flesh out the character's existence, but are essential in determining such factors as the character's profession, combat adds, exotic powers, and the like.

The object of the game is to advance your characters through experience. Experience is gained by going into space and exploring, which requires a ship. Characters start with an amount of credit determined by their caste, rank, and class. With this and any additional credit they can borrow, they design and build their ship. Ship design is solely up to the player and how much he can afford. Basically, he buys one of six standard size hulls, installs at least one command unit and one drive unit, and then adds any extras he may desire ranging from weaponry to computers to laboratories to landing vessels. All in all, players have a choice of about 70 different systems with which to equip their ships.

Ships travel through both null space and ordinary space and risk the hazards peculiar to each. Pirates, Xenophobes, and null space life-forms are all waiting for the opportunity to satisfy their aims at the expense of the space explorer. Alien devices; diseases, shock, and other dangers; hive mind cultures; ship crews and hiring; medical services; personal weapons; ship to planet combat; and more are all in the rules. Tables for the gamemaster's use in designing a galaxy are included.

Given an imaginative gamemaster and daring players, SPACE QUEST can become an open-ended campaign providing hours of fun, escapism, or what-have-you.



DEAR EDITOR,

A complete system for computer game simulation exists now. More than 17 years of development have gone into its development. The narrative below indicates some of its capacity. I'll tell you more about it later.

"Space Gamer, select your game", says the computer terminal, sounding strangely like William Shatner, "touch the plasma screen by the game of your choice". The terminal had already asked if I wanted to play solo against the machine or play against another player or players.. I could be playing against someone in Seattle or Chicago, or someone in the next room Should I play DUNGEON, STAR WARS V, a quick game of OGRE, call my brother Ben, and continue the graphics development for our expanded version of WIZARD. We are both game authors, as well as game players.

Thirty seconds have elapsed, and the terminal prompts me, "Would you like to see another game list?" I type NO on the terminal keyboard, and after considering DUNGEON, I touch the screen by STAR WARS V. There may be a few surprises this time. Seconds later, the terminal asks me to select a ship. Rear projected on the plasma screen appear an Enterprise class ship, a Klingon cruiser, the Millenium Falcon, something that looks like the Valley Forge from Silent Running, and the PanAm Clipper from 2001. I touch the Pan Am Clipper. The ships fade out, and my Clipper appears much smaller in the center of the plasma screen. A TIE fighter appears out of the upper left corner, and I know what to do because I've played the game before. You see, this ship is definitely not a 'really' Pan Am Clipper, but something much more powerful. I type ARMS, my defensive and offensive capabilities are displayed in the upper right corner of the screen, and I select..

I hope this has indicated to you some of the capabilities of this complete computer game simulation system.

What is it? and How do we get it?

The system is called PLATO. It was developed by the University of Illinois, Urbana for educational game simulation and instruction. It uses a very powerful interactive computer language called TUTOR. TUTOR can handle not only the logic, role play, graphics, and vast amount of real and simulated data needed for game simulation and development, but also is a handy diagnostic tool It can tell you how well you are playing, and even help in game design.

The biggest problem with PLATO, at present, is the fact that it is under dual control. I seriously doubt that the University of Illinois would object to someone getting into the PLATO system for game development and play, as long as they could pay for the computer time and other charges. However, most PLATO systems are under the control of a large multinational corporation. Control Data Corporation controls most PLATO development, and they are obviously in there to make a profit.

It would be interesting to see what could be done to make MICROPLATO a possibility. Could TUTOR be cut down to handle only one or two games at a time? Could PLATO be adapted to not only Minicomputers, but to Microcomputers like the ALTAIR or IMSAI machines. Some of these tiny computers can now handle hard as well as floppy discs, so they could hold TUTOR. Some microcoumputers can also accept plasma screens for really outstanding graphics, and even accomodate multiple terminals.

Some of the SPACE WAR type games exist in PLATO. There is even a DUNGEON game, hidden somewhere. It's worth the effort to see what can be done with equipment now on hand, up and running.

Dan Kloepper
Lincoln, Nebraska

I have compiled a list of spectral classes similar to that given by Norman Howe in TSG #12. By using the original Rand corporation report, two almanacs and a few astronomy books I came up with a list which differed as follows:

BD+53	K, K
BD+50	K
BD+4	M
CD-21(3325/-5)	M
CD-21(2002/-7)	M
CD-45	M
Lalande 46650	M
Ross 614	M5/M

I also found a star called Omicron^2 Eridani consisting of a KO, a M5 and wdA at 16.3 LY. Unfortunately, I could not find any other information about its position. It is impossible to compile any definitive list because the astronomers have not come up with an accurate determination of the parallaxes of the nearby stars.

Roger Cooper
Philadelphia, Pa.

The trouble with using the actual stars in the STARFORCE map when playing SC is that it destroys the game rational. One must realize that the scale in SF (1Ly/hex) is eight times that in SC (1/8 LY/hex) and thus if ship movement is to be the same the ships will travel much faster than light, which is not supposed to happen in SC. As long as we have to compress the scale to a level unrealistic in this portion of the galaxy anyway why not create a cluster from scratch, as suggested by Robert Kirk? There is no constraint placed on the players to use real stars when playing SC. Also, you can buy a new map from SPI for a dollar and use it with the game. There's no need to but the entire game, if you don't have one already, or to spoil the map of a game you already have.

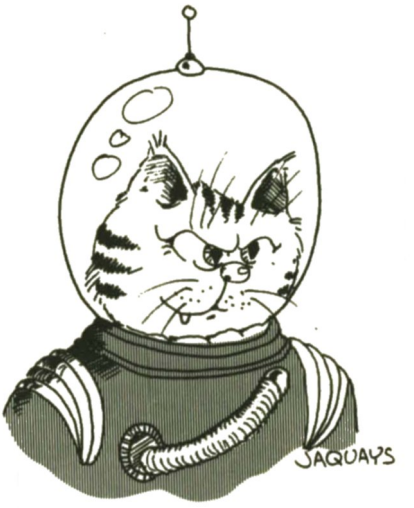
And now, in defence of Norman Howe... I read with some interest Anthony Giancola's letter in issue 12. I have never before seen a more perfect case of misunderstanding.

First of all, when Norman said that computer opponents were not tougher or more intelligent I don't believe that he was speaking of the computer but of the other players in a computer moderated game. I agree that these other players are, for the most part, no more intelligent than the average boardgamer, especially since the average boardgamer is the type most likely to get involved in a computer game!

As for computer games being more difficult, I don't see what Mr. Giancola is disagreeing with! Norman's letter plainly stated that he does not consider computer games to be more difficult to play than boardgames. What was stated was not that a board version of a computer game would be easier to play than when using the computer, but that it would be easier to play than a conventional boardgame, except for the bookkeeping, which is what the computer is for in the first place. Several computer games I have seen consist of almost nothing but bookkeeping, and the rules are usually far simpler than those of a conventional boardgame.

Mr. Giancola completely disagreed with Norman's final statement and then went on to say that he knew nothing about STRATEGY I and very little about TUNNELS AND TROLLS. T&T would not be "impossible" to computerize, but would it work? Having taken some computer science I can assure Mr. Giancola that a flow chart is not a computer program, and that it takes a good deal of effort to turn it into one. The amount of work required to computerize all of the possible choices in T&T would not be worth it in the end, and players would require a telephone book of program orders in order to play.

TUNNELS AND TROLLS is not an overly complex game. Its rules are fairly straightforward, although they do require a lot of imagination on the part of the players. STRATEGY I, on the other hand, is laid out neatly and completely, but it has a HUGE rulebook, in fine print. STRATEGY I, for those not familiar with it, is SPI's classic game of strategy and covers every aspect of strategic warfare, including economic considerations, from the time of Alexander the Great to the 1980's. The play is about average complexity for SPI, which means that each game turn is split into several phases, some of which are split into segments. Each player has at least 6 turns every game turn, and has thousands of options to choose from. Compare this with one of the most complex computer games on the market, STARWEB, with its limited options and everything at once game turns, and ask which is more complex. STARWEB is a good game, I play it myself, but is a lot easier in its mechanics than STRATEGY I, as it has to be. It would take six months to complete one turn of STRATEGY I in a computer moderated game, which is insane anyway with a game for two players. You don't need the computer. The advantage of computer games is not that they are detailed or necessarily realistic, but that they allow a lot of people to participate easily. In order to do this easily, the rules of the game must be fairly straightforward and simple.



Bryan E. Van Blaricom
Edmonton, Alberta

"Down A Texas Road"

The above drawing by Clark Bradley, represents the ever changing goals of THE SPACE GAMER staff as we move up to regular magazine size with issue #15. Look for it! The cover, from WIZARD, is a master work by the artist, Clark Bradley. There will be many surprises, and many old friends. Ask for us wherever Metagaming products are sold. (Note* Howard is shorter than I am in real life, too.)

.....C. Ben Ostrander

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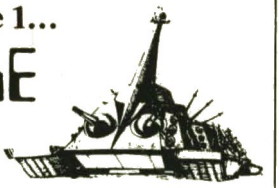

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.....OGRE .....CHITIN I .....MELEE .....WARPWAR .....RIVETS .....WIZARD .....years *TSG*

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